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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

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1	WHC-SD-EN-TI-211		0	Data Validation Report for the 100-FR-3 Operable Unit, Third Round Groundwater Samples	~~3~~Q	1/2	1	

16. KEY

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1, 2, 3, or 4 (see MRP 5.43)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

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1	1	Cog.Eng. J. M. Ayres		3/16/94	H6-02	EPIC (2)			H6-08	3	
1	1	Cog. Mgr. R. P. Henckel		3/16/94	H6-02	IRA Clearance (2)			H4-17	3	
1	1	QA D. G. Farwick		3/16/94	16	Central Files (2)			L8-04	3	
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		Env.				HASM		3/16/94	H4-23		

18. J.M. Ayres — Signature of EDT Originator — Date 3/16/94

19. Authorized Representative for Receiving Organization — Date

20. R.P. Henckel — Cognizant/Project Engineer's Manager — Date 3/16/94

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ID Number (include revision, volume, etc.): WHC-SD-EN-TI-211, Rev. 0

List attachments.

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Classification/Unclassified Controlled Nuclear Information	[]	[X]	
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Part 1

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SUPPORTING DOCUMENT

1. Total Pages 237

2. Title	3. Number	4. Rev No.
Data Validation Report for the 100-FR-3 Operable Unit, Third Round Groundwater Samples	WHC-SD-EN-TI-211	0

5. Key Words

VOA, SemiVOA, Pesticides/PCB, Metals, Wet chemistry, Gross alpha, Gross beta, Alpha spectroscopy, Gamma spectroscopy

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6. Author

Name: J. M. Ayres

Signature

Organization/Charge Code
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7. Abstract

WHC, 1994, *Data Validation Report for the 100-FR-3 Operable Unit, Third Round Groundwater Samples*, WHC-SD-EN-TI-211, Rev. 0, prepared by A.T. Kearney, Inc. for Westinghouse Hanford Company, Richland, Washington.

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ACRONYMS

%D	Percent difference
AA	Atomic absorption
BFB	Bromofluorobenzene
BNA	Base/neutral and acid (equivalent to semivolatiles)
CCB	Continuing calibration blank
CCV	Continuing calibration verification
CLP	Contract Laboratory Program
CRA	CRDL standard for AA
CRDL	Contract required detection limit
CRI	CRDL standard for ICP
CRII	CRDL standard for ICP initial
CRIF	CRDL standard for ICP final
CRQL	Contract required quantitation limit
DBC	Dibutylchlorendate
DFTPP	Decafluorotriphenylphosphine
DQO	Data quality objectives
EPA	U.S. Environmental Protection Agency
GC/MS	Gas chromatography/mass spectrometry
GC	Gas chromatography
GFAA	Graphite furnace atomic absorption
GPC	Gel permeation chromatography
ICB	Initial Calibration Blank
ICP	Inductively coupled plasma emission spectrometry
ICS	ICP interference check sample
ICV	Initial calibration verification
IDL	Instrument detection limit
LCS	Laboratory control sample
LCSS	Laboratory control sample soil
LCSW	Laboratory control sample water
MSA	Method of standard addition
MS/MSD	Matrix spike/matrix spike duplicate
NV	Not Validated
PBW	Preparation blank water
PCB	Polychlorinated biphenyl
PEM	Performance evaluation mixture
QA	Quality assurance
QC	Quality control
RF	Response factor
RIC	Reconstructed ion chromatogram
RPD	Relative percent difference
RRF	Relative response factor
RRT	Relative retention time
RSD	Relative standard deviation
RT	Retention time
SDG	Sample delivery group
SOW	Statement of work
TAL	Target analyte list
TCL	Target compound list
TIC	Tentatively identified compounds
TOC	Total organic carbon
TOX	Total organic halides
V	Validated
VOC	Volatile organic compounds

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CONTENTS

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1.0 INTRODUCTION

The following samples were obtained from the 100-FR-3 Operable Unit Third Round Groundwater Sampling event:

B08Y11	B08Y36	B08Y61	B08Y86	B08YC1
B08Y12	B08Y37	B08Y62	B08Y87	B08YC2
B08Y13	B08Y38	B08Y63	B08Y88	B08YC3
B08Y14	B08Y39	B08Y64	B08Y89	B08YC4
B08Y15	B08Y40	B08Y65	B08Y90	B08YC5
B08Y16	B08Y41	B08Y66	B08Y91	B08YC6
B08Y17	B08Y42	B08Y67	B08Y92	B08YC7
B08Y18	B08Y43	B08Y68	B08Y93	B08YC8
B08Y19	B08Y44	B08Y69	B08Y94	B08YC9
B08Y20	B08Y45	B08Y70	B08Y95	B08YD0
B08Y21	B08Y46	B08Y71	B08Y96	B08YD1
B08Y22	B08Y47	B08Y72	B08Y97	B08YD2
B08Y23	B08Y48	B08Y73	B08Y98	B08YD3
B08Y24	B08Y49	B08Y74	B08Y99	B08YD4
B08Y25	B08Y50	B08Y75	B08YB0	B08YD5
B08Y26	B08Y51	B08Y76	B08YB1	B08YD6
B08Y27	B08Y52	B08Y77	B08YB2	B08YD7
B08Y28	B08Y53	B08Y78	B08YB3	B08YD8
B08Y29	B08Y54	B08Y79	B08YB4	B08YD9
B08Y30	B08Y55	B08Y80	B08YB5	B08YF0
B08Y31	B08Y56	B08Y81	B08YB6	B08YF1
B08Y32	B08Y57	B08Y82	B08YB7	B08YF2
B08Y33	B08Y58	B08Y83	B08YB8	B08YF3
B08Y34	B08Y59	B08Y84	B08YB9	B08YF4
B08Y35	B08Y60	B08Y85	B08YC0	B08YF5

Westinghouse-Hanford has requested that a minimum of 20% of the total number of Sample Delivery Groups be validated for the 100-FR-3 Operable Unit Third Round Groundwater Sampling Investigation. Therefore, the data from the chemical analysis of 51 samples from this sampling event and their related quality assurance samples were reviewed and validated to verify that reported sample results were of sufficient quality to support decisions regarding remedial actions performed at this site. The samples were analyzed by Thermo-Analytic Laboratories (TMA) and Roy F. Weston Laboratories (WESTON) using U.S. Environmental Protection Agency (EPA) CLP protocols.

Sample analyses included:

- Volatile organics
- Semivolatile organics
- Pesticide/PCB organics

- Inorganics
- General chemical parameters.

The table below lists the Sample Delivery Groups (SDGs) that were validated for this sampling event. The validated data and the non-validated results for the remaining samples are included in this report.

SDG No.	Matrix	No. of Samples Analyzed	Parameters
B08Y15	W	25	Wet Chem
B08Y26	W	8	VOC
B08Y41	W	10	VOC
B08Y41	W	7	BNA, Pest/PCBs
B08Y41	W	5	Inorganics, Wet Chem
B08Y42	W	5	Inorganics
B08Y76	W	4	VOC
B08Y76	W	2	Inorganics, Wet Chem
B08Y77	W	2	Inorganics
B08Y91	W	8	VOC
B08Y91	W	4	BNA, Pest/PCBs, Inorganics, Wet Chem
B08Y92	W	4	Inorganics
B08Y94	W	4	Wet Chem
B08YB1	W	2	VOC, Inorganics
B08YB1	W	1	BNA, Pest/PCBs, Wet Chem
B08YB5	W	2	VOC, Inorganics
B08YB5	W	1	BNA, Pest/PCBs, Wet Chem

Twenty-five samples were validated for radiochemical parameters by TMA and Teledyne. Analytical protocols specified in the *Westinghouse Hanford Company Statement of Work for Nonradioactive Inorganic/Organic and Radiochemical Analytical Services* were used. Sample analyses included the following:

- Gross alpha and gross beta determination
- Alpha spectroscopy
- Gamma spectroscopy
- Strontium-90

- Technetium-99
- Carbon-14
- Tritium.

SDG No.	Matrix	No. of Samples Analyzed	Parameters
B08Y11	W	9	Radiochemistry
B08Y26	W	14	Radiochemistry
B08YB1	W	1	Radiochemistry
B08YB5	W	1	Radiochemistry

The radiochemical data summary tables can be found following Section 13.8.

Data quality was reviewed and analytical results validated using Westinghouse-Hanford procedures and related EPA CLP protocols and guidelines. Data were qualified based upon their quality and the guidance provided by these sources. In instances where the two protocols differed, the Westinghouse-Hanford guidance was followed.

Two sets of split samples were submitted to TMA and Roy F. Weston Laboratories as shown below:

Set 1:

Sample No.	Split Sample No.	Well Location
B08Y76	B08YB1	199-F7-1
B08Y77	B08YB2	199-F7-1
B08Y78	B08YB3	199-F7-1
B08Y79	B08YB4	199-F7-1

Set 2:

Sample No.	Split Sample No.	Well Location
B08Y91	B08YB5	199-F8-2
B08Y92	B08YB6	199-F8-2
B08Y93	B08YB7	199-F8-2
B08Y94	B08YB8	199-F8-2

The sample and split samples for both well locations were included in the validated data. The results were compared using the sample guidelines for determining the RPD between a sample and its duplicate. All results for both well locations appear in the summary tables within this report.

Two sets of field duplicate samples were submitted to TMA as shown below.

Set 1:

Sample No.	Duplicate Sample No.	Well Location
B08Y76	B08YC0	199-F7-1
B08Y77	B08YC1	199-F7-1
B08Y78	B08YC2	199-F7-1
B08Y79	B08YC3	199-F7-1
B08Y80	B08YC3	199-F7-1

Set 2:

Sample No.	Duplicate Sample No.	Well Location
B08Y91	B08YC5	199-F8-2
B08Y92	B08YC6	199-F8-2
B08Y93	B08YC7	199-F8-2
B08Y94	B08YC8	199-F8-2
B08Y95	B08YC9	199-F8-2

The duplicate sample results for both well locations were included in the validated data. The results were compared using the sample guidelines for determining the RPD between a sample and its duplicate. All results fell within the required control limit. All results for both well locations appear in the summary tables within this report.

Two sets of equipment blanks were submitted to TMA, Weston and DataChem as shown in the table below. Both sets were collected on 7/23/93 and designated EB-1 and EB-2, respectively.

Set 1: Sample Number	Set 2: Sample Number
B08YD0	B08YD5
B08YD1	B08YD6
B08YD2	B08YD7
B08YD3	B08YD8
B08YD4	B08YD9

Under EPA protocol, equipment blanks are water samples used to indicate whether or not decontamination procedures were adequate or that contamination was not inherent in the equipment used. The equipment blank information provided was inadequate to determine what contamination, if any, was a result of the equipment used. Equipment blanks require well number locations and associated sample numbers in order to make such a determination.

The report is broken down into sections for each chemical analysis and radiochemical analysis type. Each section addresses the data package completeness, holding time adherence, instrument calibration and tuning acceptability, blank results, accuracy, precision, system performance, as well as the compound identification and quantitation. In addition, each section has an overall assessment and summary for the data packages reviewed for the particular chemical/radiochemical analyses. Detailed backup information is provided to the reader by SDG No. and sample number. For each data package, a matrix of chemical analyses per sample number is presented, as well as data qualification summaries.

Laboratory and data validation personnel added qualifiers to the reported data based on specified data quality objectives. The data reporting qualifiers are summarized as follows:

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for dilutions and moisture content. It should be noted that the sample quantitation limit may be higher or lower than the contract or method required detection limit, depending on instrumentation, matrix and concentration factors.

J - Indicates the analyte was analyzed for and detected. However, the associated value is considered to be an estimate due to identified QC deficiencies. Data flagged with a "J" may be usable for decision making purposes, depending upon the DQOs of the project. Laboratories qualify all reported organic detects below CRQL with a "J" per the CLP procedures.

UJ - Indicates the analyte was analyzed for and not detected. However, the associated detection limit is considered to be an estimate due to identified QC deficiencies. Detection limits flagged with a "UJ" may be usable for decision making purposes, depending upon the DQOs of the project.

JN - Indicates the analyte was analyzed for and that there is presumptive evidence of the presence of the compound. The concentration reported is considered an estimate which should be used for informational purposes only.

R - Indicates the analyte was analyzed for and due to a significant QC deficiency, the data are deemed unusable. Analytic results flagged "R" are invalid and provide no information as to whether or not the analyte is present.

It should be noted that, frequently, results will bear two qualifiers - one given by the laboratory and one given during the validation process. For example, a "U" qualifier is given by the

laboratory when the compound has not been detected during the analysis, and a "J" qualifier may be added during the validation to qualify the result due to minor quality problems. Therefore, the resulting qualification is "UJ", where the "U" qualifier has been given by the laboratory and the "J" qualifier given by the validator.

The results of data validation performed for the 100-FR-3 Operable Unit Third Round Groundwater Sampling Investigation are contained in the tables following each of the chapters in this report.

Several general quality trends which resulted in data qualification were observed. These included:

- Minor laboratory blank contamination was noted in the volatile and semivolatile results for some samples. The contaminants were compounds commonly found in analytical laboratories and the corresponding sample results were flagged accordingly.

- The continuing calibration result for one compound grossly exceeded QC limits for one pesticide/PCB sample. All associated sample results were rejected and flagged "R".

- The surrogate recovery results for one pesticide/PCB samples did not meet QC limits. All associated sample results were flagged "J".

- The initial calibration result for one pesticide/PCB compound did not meet QC limits for one sample. The associated sample result was flagged "J".

- The metals analysis showed minor matrix spike accuracy problems and analytical spike recoveries below the QC limit. Approximately 15 percent of the metals results were flagged "J" due to these factors.

- Both positive and negative laboratory blank contamination was noted in the inorganics analysis. Associated results were flagged accordingly. Contamination, however, was not sufficiently high to affect the usability of the data.

- The holding time from sample collection to preparation and analysis was exceeded for pH, phosphate and hydrazine in several wet chemistry data packages. In one data package results were grossly exceeded. Associated results were flagged accordingly.

- Insufficient calibrations were performed by the laboratory for several wet chemistry analyses in numerous data packages. All associated results were flagged accordingly.

- Due to low chemical yields, the isotopic plutonium, americium-241 and technetium-99 results in several samples were rejected and flagged "R".

- All alpha spectroscopy results in two SDGs were qualified as estimates due to peak resolution results outside of QC limits.

- Insufficient calibrations were performed by the laboratory for several radiochemistry analyses in numerous data packages. All associated data were flagged accordingly.

In general, the protocol-specific QA/QC requirements were met for the samples analyzed in this investigation with the exceptions noted above and discussed in detail in the chapters to follow. All requested analyses were performed.

With the exceptions noted above, the protocol-specific data quality objectives in terms of precision, accuracy, completeness, representativeness, and comparability have been met.

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WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	VOLATILES
199-F1-2	B08Y11	W	07/28/93	NV	2-5
	B08Y13	W	07/28/93	NV	2-5
199-F5-1	B08Y16	W	07/23/93	NV	2-6
	B08Y18	W	07/23/93	NV	2-6
199-F5-3	B08Y21	W	07/30/93	NV	2-7
	B08Y23	W	07/30/93	NV	2-7
199-F5-4	B08Y26	W	07/21/93	V	2-8
	B08Y28	W	07/21/93	V	2-8
199-F5-6	B08Y31	W	07/21/93	V	2-8
	B08Y33	W	07/21/93	V	2-8
199-F5-42	B08Y36	W	07/20/93	NV	2-9
	B08Y38	W	07/20/93	NV	2-9
199-F5-43A	B08Y41	W	07/18/93	V	2-10
	B08Y43	W	07/18/93	V	2-10
199-F5-44	B08Y46	W	07/20/93	NV	2-9
	B08Y48	W	07/20/93	NV	2-9
199-F5-45	B08Y51	W	07/17/93	V	2-10
	B08Y53	W	07/17/93	V	2-10
199-F5-46	B08Y56	W	07/18/93	V	2-10
	B08Y58	W	07/18/93	V	2-10
199-F5-47	B08Y61	W	07/18/93	V	2-10
	B08Y63	W	07/18/93	V	2-10
199-F5-48	B08Y66	W	07/17/93	V	2-10
	B08Y68	W	07/17/93	V	2-10
199-F6-1	B08Y71	W	07/21/93	V	2-8
	B08Y73	W	07/21/93	V	2-8
199-F7-1	B08Y76	W	07/19/93	V	2-11
	B08Y78	W	07/19/93	V	2-11
	B08YB1	W	07/19/93	V	2-14
	B08YB3	W	07/19/93	V	2-14
	B08YC0	W	07/19/93	V	2-11
	B08YC2	W	07/19/93	V	2-11
199-F7-2	B08Y81	W	07/28/93	NV	2-5
	B08Y83	W	07/28/93	NV	2-5

WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	VOLATILES
199-F7-3	B08Y86	W	07/28/93	NV	2-5
	B08Y88	W	07/28/93	NV	2-5
199-F8-2	B08Y91	W	07/24/93	V	2-12
	B08Y93	W	07/24/93	V	2-12
	B08YB5	W	07/24/93	V	2-17
	B08YB7	W	07/24/93	V	2-17
	B08YC5	W	07/24/93	V	2-12
	B08YC7	W	07/24/93	V	2-12
199-F8-3	B08Y96	W	07/22/93	V	2-13
	B08Y98	W	07/22/93	V	2-13
199-F8-4	B08YF1	W	07/22/93	V	2-13
	B08YF3	W	07/22/93	V	2-13
EB-1	B08YD0	W	07/23/93	V	2-12
	B08YD2	W	07/23/93	V	2-12
EB-2	B08YD5	W	07/23/93	V	2-12
	B08YD7	W	07/23/93	V	2-12
MB	B08YB9	W	07/21/93	V	2-8
	B08YF0	W	07/21/93	V	2-8

2.0 VOLATILE ORGANIC DATA VALIDATION

2.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y26	B08Y76	B08Y96	B08YB5
B08Y41	B08Y91	B08YB1	

2.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the Westinghouse-Hanford holding time requirements for volatile organic analyses were met by the laboratory. The Westinghouse-Hanford holding time requirements for volatile organic analyses are as follows: soil samples must be analyzed within 14 days of the date of sample collection; aqueous samples must be analyzed within seven days of the date of sample collection (if unpreserved); and all samples must be shipped on ice to the laboratory and stored at 4°C until analysis.

Holding times were met for all samples.

2.3 INSTRUMENT CALIBRATION AND TUNING

Instrument calibration is performed to establish that the GC/MS instrument is capable of producing acceptable and reliable analytical data over a range of concentrations. The initial and continuing calibrations are to be performed according to CLP protocols. An initial multipoint calibration is performed prior to sample analysis to establish the linear range of the GC/MS instrument. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

All initial and continuing calibration results were acceptable.

2.3.1 GC/MS Tuning/Instrument Performance Check

Tuning is performed to ensure that mass resolution, identification, and, to some degree, sensitivity of the GC/MS instrument have been established. When analyzing for volatile organics, instrument tuning is performed with BFB. Instrument tuning must be performed prior to the analysis of either

standards or samples and must meet the criteria for acceptable GC/MS instrument tuning using BFB as outlined in Westinghouse-Hanford (WHC 1992) and in EPA (EPA 1988b and 1991) criteria.

The original data were checked for transcription and calculation errors to verify that tuning criteria were met. Prior to calibration and sample analysis, all tuning criteria were met.

All GC/MS tuning data were acceptable.

2.4 BLANKS

Method blank, field blank and trip blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in associated blanks should be qualified as non-detects; common laboratory contaminants present in samples at less than 10 times the concentration of that analyte in the associated blank are qualified as non-detects.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for methylene chloride:

- Sample numbers B08YB1 and B08YB3 in SDG No. B08YB1.
- Sample number B08YB5 in SDG No. B08YB5.

Due to the presence of laboratory blank contamination, the following sample was flagged "U" for acetone:

- Sample number B08YB7 in SDG No. B08YB5.

All other laboratory blank results were acceptable.

2.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of stable isotopically labeled surrogate compounds added to all samples and blanks, and by the analysis of a representative sample which was spiked with a variety of volatile organic compounds.

2.5.1 Matrix Spike Recovery

Matrix spike compounds are added to a sample which is representative of the sample delivery group. Matrix spike analyses are performed in duplicate using five compounds and should be within the established quality control limits (EPA 1988b). The matrix spike analyses estimate how much the target

compounds are interfered with, either positively or negatively, by the sample matrix.

All matrix spike/matrix spike duplicate recovery results were acceptable.

2.5.2 Surrogate Recovery

Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When a surrogate compound recovery is out of the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Undetected compounds are qualified as having an estimated detection limit and flagged "UJ".

All surrogate recovery results were acceptable.

2.6 PRECISION

Precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Field precision is measured by analyzing duplicate samples taken in the field.

All matrix spike/matrix spike duplicate RPD results were acceptable.

2.7 INTERNAL STANDARDS PERFORMANCE

Internal standard performance was assessed to determine whether abrupt changes in instrument response and sensitivity occurred that may have affected the reliability of the analytical data. The response (area or height) of the internal standards must not vary by more than 100 percent or -50 percent from the response of the internal standard that was used to calculate the upper and lower bounds. The upper and lower bounds define the range for acceptable internal standard response (area/height) for the sample analyses.

All internal standard recovery results were acceptable.

2.8 COMPOUND IDENTIFICATION AND QUANTITATION

The identity of detected compounds are confirmed to investigate the possibility of false positives. The confirmation of compound identification during the quality assurance review focuses on false positives because only mass spectra for positive identifications are submitted. However, target compounds that

are reported as undetected are also evaluated to investigate the possibility of false negatives. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., relative response factors, detection limits, linearity, analytical recovery).

Compound quantitations and reported detection limits were recalculated for a minimum of 20 percent of the samples in each case to verify that they are accurate and are consistent with CLP requirements.

Below the CRQL, instrument precision becomes more variable as the instrument detection limit is approached. Therefore, the concentration of any compound that was detected below the CRQL was qualified as an estimate and flagged "J".

All reported results and quantitation limits were verified as correct.

2.9 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, or sensitivity) were found during the quality assurance review.

In general, the volatile data presented in this report met the protocol-specified QA/QC requirements. Minor blank contamination was detected in four samples, all from laboratory blank contamination. All other validated data are considered valid and usable within the standard error associated with the method.

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y11																				
Sample Number		B08Y11		B08Y13		B08Y81		B08Y83		B08Y86		B08Y88									
Location		199-F1-2		199-F1-2		199-F7-2		199-F7-2		199-F7-3		199-F7-3									
Remarks		NV		NV		NV		NV		NV		NV									
Sample Date		07/28/93		07/28/93		07/28/93		07/28/93		07/28/93		07/28/93									
Analysis Date		08/10/93		08/10/93		08/10/93		08/10/93		08/10/93		08/10/93									
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
Bromomethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
Vinyl Chloride	10	10	U	10	U	10	U	10	U	10	U	10	U								
Chloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
Methylene Chloride	10	10	U	10	U	10	U	10	U	10	U	10	U								
Acetone	10	10	U	10	U	10	U	10	U	10	U	19									
Carbon Disulfide	10	10	U	10	U	10	U	10	U	10	U	10	U								
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U								
1,1-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U								
Chloroform	10	2	J	10	U	10	U	10	U	10	U	10	U								
1,2-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
2-Butanone	10	10	U	10	U	10	U	10	U	10	U	10	U								
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
Carbon Tetrachloride	10	10	U	10	U	10	U	10	U	10	U	10	U								
Bromodichloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U	10	U	10	U								
cis-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U								
Trichloroethene	10	10	U	10	U	3	J	10	U	3	J	10	U								
Dibromochloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
Benzene	10	10	U	10	U	10	U	10	U	10	U	10	U								
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U								
Bromoform	10	10	U	10	U	10	U	10	U	10	U	10	U								
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U	5	J	5	J								
2-Hexanone	10	10	U	10	U	10	U	10	U	10	U	10	U								
Tetrachloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U								
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U								
Toluene	10	10	U	10	U	10	U	10	U	10	U	10	U								
Chlorobenzene	10	10	U	10	U	10	U	10	U	10	U	10	U								
Ethylbenzene	10	10	U	10	U	10	U	10	U	10	U	10	U								
Styrene	10	10	U	10	U	10	U	10	U	10	U	10	U								
Xylene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U								

NV = Not Validated

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y16																				
Sample Number		B08Y16		B08Y18																	
Location		199-F5-1		199-F5-1																	
Remarks		NV		NV																	
Sample Date		07/23/93		07/23/93																	
Analysis Date		07/30/93		07/30/93																	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U																
Bromomethane	10	10	U	10	U																
Vinyl Chloride	10	10	U	10	U																
Chloroethane	10	10	U	10	U																
Methylene Chloride	10	10	U	10	U																
Acetone	10	10	U	10	U																
Carbon Disulfide	10	10	U	10	U																
1,1-Dichloroethene	10	10	U	10	U																
1,1-Dichloroethane	10	10	U	10	U																
1,2-Dichloroethene (total)	10	10	U	10	U																
Chloroform	10	10	U	10	U																
1,2-Dichloroethane	10	10	U	10	U																
2-Butanone	10	10	U	10	U																
1,1,1-Trichloroethane	10	10	U	10	U																
Carbon Tetrachloride	10	10	U	10	U																
Vinyl Acetate	10	10	U	10	U																
Bromodichloromethane	10	10	U	10	U																
1,2-Dichloropropane	10	10	U	10	U																
cis-1,3-Dichloropropene	10	10	U	10	U																
Trichloroethene	10	10	U	10	U																
Dibromochloromethane	10	10	U	10	U																
1,1,2-Trichloroethane	10	10	U	10	U																
Benzene	10	10	U	10	U																
trans-1,3-Dichloropropene	10	10	U	10	U																
Bromoform	10	10	U	10	U																
4-Methyl-2-pentanone	10	10	U	10	U																
2-Hexanone	10	10	U	10	U																
Tetrachloroethene	10	10	U	10	U																
1,1,2,2-Tetrachloroethane	10	10	U	10	U																
Toluene	10	10	U	10	U																
Chlorobenzene	10	10	U	10	U																
Ethylbenzene	10	10	U	10	U																
Styrene	10	10	U	10	U																
Xylene (total)	10	10	U	10	U																

NV Not Validated

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y21																		
Sample Number		B08Y21		B08Y23															
Location		199-F5-3		199-F5-3															
Remarks		NV		NV															
Sample Date		07/30/93		07/30/93															
Analysis Date		08/10/93		08/10/93															
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U														
Bromomethane	10	10	U	10	U														
Vinyl Chloride	10	10	U	10	U														
Chloroethane	10	10	U	10	U														
Methylene Chloride	10	10	U	10	U														
Acetone	10	16		10	U														
Carbon Disulfide	10	10	U	10	U														
1,1-Dichloroethene	10	10	U	10	U														
1,1-Dichloroethane	10	10	U	10	U														
1,2-Dichloroethene (total)	10	10	U	10	U														
Chloroform	10	10	U	10	U														
1,2-Dichloroethane	10	10	U	10	U														
2-Butanone	10	32		12															
1,1,1-Trichloroethane	10	10	U	10	U														
Carbon Tetrachloride	10	10	U	10	U														
Bromodichloromethane	10	10	U	10	U														
1,2-Dichloropropane	10	10	U	10	U														
cis-1,3-Dichloropropene	10	10	U	10	U														
Trichloroethene	10	3	J	10	U														
Dibromochloromethane	10	10	U	10	U														
1,1,2-Trichloroethane	10	10	U	10	U														
Benzene	10	10	U	10	U														
trans-1,3-Dichloropropene	10	10	U	10	U														
Bromoform	10	10	U	10	U														
4-Methyl-2-pentanone	10	10		5	J														
2-Hexanone	10	10		9	J														
Tetrachloroethene	10	10	U	10	U														
1,1,2,2-Tetrachloroethane	10	10	U	10	U														
Toluene	10	2	J	10	U														
Chlorobenzene	10	10	U	10	U														
Ethylbenzene	10	10	U	10	U														
Styrene	10	10	U	10	U														
Xylene (total)	10	10	U	10	U														

NV = Not Validated

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y26																		
Sample Number		B08Y26		B08Y28		B08Y31		B08Y33		B08Y71		B08Y73		B08YB9		B08YF0			
Location		199-F5-4		199-F5-4		199-F5-6		199-F5-6		199-F6-1		199-F6-1							
Remarks														MB		MB			
Sample Date		07/21/93		07/21/93		07/21/93		07/21/93		07/21/93		07/21/93		07/21/93		07/21/93			
Analysis Date		07/28/93		07/28/93		07/28/93		07/28/93		07/28/93		07/28/93		07/28/93		07/28/93			
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Bromomethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Vinyl Chloride	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Chloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Methylene Chloride	10	10	U	4	J	10	U	9	J	10		4	J	2	J	2	J				
Acetone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Carbon Disulfide	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Chloroform	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,2-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
2-Butanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Carbon Tetrachloride	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Bromodichloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
cis-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Trichloroethene	10	1	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Dibromochloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Benzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Bromoform	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
2-Hexanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Tetrachloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Toluene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Chlorobenzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Ethylbenzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Styrene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Xylene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				

MB = Method Blank

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y36																				
Sample Number		B08Y36		B08Y38		B08Y46		B08Y48													
Location		199-F5-42		199-F5-42		199-F5-44		199-F5-44													
Remarks		NV		NV		NV		NV													
Sample Date		07/20/93		07/20/93		07/20/93		07/20/93													
Analysis Date		07/26/93		07/26/93		07/26/93		07/26/93													
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U												
Bromomethane	10	10	U	10	U	10	U	10	U												
Vinyl Chloride	10	10	U	10	U	10	U	10	U												
Chloroethane	10	10	U	10	U	10	U	10	U												
Methylene Chloride	10	10	U	1	J	10	U	1	J												
Acetone	10	10	U	10	U	10	U	10	U												
Carbon Disulfide	10	10	U	10	U	10	U	10	U												
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U												
1,1-Dichloroethane	10	10	U	10	U	10	U	10	U												
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	U												
Chloroform	10	10	U	10	U	10	U	10	U												
1,2-Dichloroethane	10	10	U	10	U	10	U	10	U												
2-Butanone	10	10	U	10	U	10	U	10	U												
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U												
Carbon Tetrachloride	10	10	U	10	U	10	U	10	U												
Bromodichloromethane	10	10	U	10	U	10	U	10	U												
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U												
cis-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U												
Trichloroethene	10	10	U	10	U	10	U	10	U												
Dibromochloromethane	10	10	U	10	U	10	U	10	U												
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U												
Benzene	10	10	U	10	U	10	U	10	U												
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U												
Bromoform	10	10	U	10	U	10	U	10	U												
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U												
2-Hexanone	10	10	U	10	U	10	U	10	U												
Tetrachloroethene	10	10	U	10	U	10	U	10	U												
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U	10	U												
Toluene	10	10	U	10	U	10	U	10	U												
Chlorobenzene	10	10	U	10	U	10	U	10	U												
Ethylbenzene	10	10	U	10	U	10	U	10	U												
Styrene	10	10	U	10	U	10	U	10	U												
Xylene (total)	10	10	U	10	U	10	U	10	U												

NV = Not Validated

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y41																				
Sample Number		B08Y41		B08Y43		B08Y51		B08Y53		B08Y56		B08Y58		B08Y61		B08Y63		B08Y66		B08Y68	
Location		199-F5-43A		199-F5-43A		199-F5-45		199-F5-45		199-F5-46		199-F5-46		199-F5-47		199-F5-47		199-F5-48		199-F5-48	
Remarks																					
Sample Date		07/18/93		07/18/93		07/17/93		07/17/93		07/18/93		07/18/93		07/18/93		07/18/93		07/17/93		07/17/93	
Analysis Date		07/26/93		07/27/93		07/26/93		07/27/93		07/26/93		07/27/93		07/27/93		07/27/93		07/27/93		07/27/93	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	10	10	U	2	J	10	U	2	J	10	U	2	J	10	U	10	U	10	U	1	J
Acetone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	10	10	U	10	U	8	J	10	U	5	J	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	10	U	10	U	2	J	10	U	10	U	10	U	10	U	10	U	3	J	10	U
Dibromochloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromoform	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Toluene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Ethylbenzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Styrene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Xylene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y76																				
Sample Number		B08Y76		B08Y78		B08YC0		B08YC2													
Location		199-F7-1		199-F7-1		199-F7-1		199-F7-1													
Remarks						DUP		DUP													
Sample Date		07/19/93		07/19/93		07/19/93		07/19/93													
Analysis Date		07/26/93		07/27/93		07/26/93		07/26/93													
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U												
Bromomethane	10	10	U	10	U	10	U	10	U												
Vinyl Chloride	10	10	U	10	U	10	U	10	U												
Chloroethane	10	10	U	10	U	10	U	10	U												
Methylene Chloride	10	10	U	4	J	10	U	10	U												
Acetone	10	10	U	10	U	10	U	10	U												
Carbon Disulfide	10	10	U	10	U	10	U	10	U												
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U												
1,1-Dichloroethane	10	10	U	10	U	10	U	10	U												
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	U												
Chloroform	10	10	U	10	U	10	U	10	U												
1,2-Dichloroethane	10	10	U	10	U	10	U	10	U												
2-Butanone	10	10	U	10	U	10	U	10	U												
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U												
Carbon Tetrachloride	10	10	U	10	U	10	U	10	U												
Bromodichloromethane	10	10	U	10	U	10	U	10	U												
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U												
cis-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U												
Trichloroethene	10	18		10	U	20		10	U												
Dibromochloromethane	10	10	U	10	U	10	U	10	U												
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U												
Benzene	10	10	U	10	U	10	U	10	U												
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U												
Bromoform	10	10	U	10	U	10	U	10	U												
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U												
2-Hexanone	10	10	U	10	U	10	U	10	U												
Tetrachloroethene	10	10	U	10	U	10	U	10	U												
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U	10	U												
Toluene	10	10	U	10	U	10	U	10	U												
Chlorobenzene	10	10	U	10	U	10	U	10	U												
Ethylbenzene	10	10	U	10	U	10	U	10	U												
Styrene	10	10	U	10	U	10	U	10	U												
Xylene (total)	10	10	U	10	U	10	U	10	U												

DUP = Duplicate

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y91																				
Sample Number		B08Y91		B08Y93		B08YC5		B08YC7		B08YD0		B08YD2		B08YD5		B08YD7					
Location		199-F8-2		199-F8-2		199-F8-2		199-F8-2		EB-1		EB-1		EB-2		EB-2					
Remarks						DUP		DUP		EB		EB		EB		EB					
Sample Date		07/24/93		07/24/93		07/24/93		07/24/93		07/23/93		07/23/93		07/23/93		07/23/93					
Analysis Date		07/29/93		07/29/93		07/29/93		07/29/93		07/29/93		07/29/93		07/29/93		07/29/93					
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Bromomethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Vinyl Chloride	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Chloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Methylene Chloride	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Acetone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Carbon Disulfide	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Chloroform	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,2-Dichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
2-Butanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Carbon Tetrachloride	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Bromodichloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
cis-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Trichloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Dibromochloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Benzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Bromoform	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
2-Hexanone	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Tetrachloroethene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Toluene	10	4	J	10	U	10	U	4	J	10	U	10	U	10	U	10	U				
Chlorobenzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Ethylbenzene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Styrene	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				
Xylene (total)	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U				

DUP = Duplicate, EB = Equipment Blank

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y96																				
Sample Number		B08Y96		B08Y98		B08YF1		B08YF3													
Location		199-F8-3		199-F8-3		199-F8-4		199-F8-4													
Remarks																					
Sample Date		07/22/93		07/22/93		07/22/93		07/22/93													
Analysis Date		07/28/93		07/28/93		07/28/93		07/28/93													
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U												
Bromomethane	10	10	U	10	U	10	U	10	U												
Vinyl Chloride	10	10	U	10	U	10	U	10	U												
Chloroethane	10	10	U	10	U	10	U	10	U												
Methylene Chloride	10	10	U	10	U	10	U	10	U												
Acetone	10	10	U	10	U	10	U	10	U												
Carbon Disulfide	10	10	U	10	U	10	U	10	U												
1,1-Dichloroethene	10	10	U	10	U	10	U	10	U												
1,1-Dichloroethane	10	10	U	10	U	10	U	10	U												
1,2-Dichloroethene (total)	10	10	U	10	U	10	U	10	U												
Chloroform	10	10	U	10	U	10	U	10	U												
1,2-Dichloroethane	10	10	U	10	U	10	U	10	U												
2-Butanone	10	10	U	10	U	10	U	10	U												
1,1,1-Trichloroethane	10	10	U	10	U	10	U	10	U												
Carbon Tetrachloride	10	10	U	10	U	10	U	10	U												
Bromodichloromethane	10	10	U	10	U	10	U	10	U												
1,2-Dichloropropane	10	10	U	10	U	10	U	10	U												
cis-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U												
Trichloroethene	10	10	U	10	U	3	J	10	U												
Dibromochloromethane	10	10	U	10	U	10	U	10	U												
1,1,2-Trichloroethane	10	10	U	10	U	10	U	10	U												
Benzene	10	10	U	10	U	10	U	10	U												
trans-1,3-Dichloropropene	10	10	U	10	U	10	U	10	U												
Bromoform	10	10	U	10	U	10	U	10	U												
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U												
2-Hexanone	10	10	U	10	U	10	U	10	U												
Tetrachloroethene	10	10	U	10	U	10	U	10	U												
1,1,2,2-Tetrachloroethane	10	10	U	10	U	10	U	10	U												
Toluene	10	10	U	10	U	10	U	10	U												
Chlorobenzene	10	10	U	10	U	10	U	10	U												
Ethylbenzene	10	10	U	10	U	10	U	10	U												
Styrene	10	10	U	10	U	10	U	10	U												
Xylene (total)	10	10	U	10	U	10	U	10	U												

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB1																				
Sample Number		B08YB1		B08YB3																	
Location		199-F7-1		199-F7-1																	
Remarks		Split		Split																	
Sample Date		07/19/93		07/19/93																	
Analysis Date		07/29/93		07/29/93																	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U																
Bromomethane	10	10	U	10	U																
Vinyl Chloride	10	10	U	10	U																
Chloroethane	10	10	U	10	U																
Methylene Chloride	10	11	U	11	U																
Acetone	10	9	J	5	J																
Carbon Disulfide	10	5	U	5	U																
1,1-Dichloroethene	10	5	U	5	U																
1,1-Dichloroethane	10	5	U	5	U																
1,2-Dichloroethene (total)	10	5	U	5	U																
Chloroform	10	5	U	5	U																
1,2-Dichloroethane	10	5	U	5	U																
2-Butanone	10	10	U	10	U																
1,1,1-Trichloroethane	10	5	U	5	U																
Carbon Tetrachloride	10	5	U	5	U																
Vinyl Acetate	10	10	U	10	U																
Bromodichloromethane	10	5	U	5	U																
1,2-Dichloropropane	10	5	U	5	U																
cis-1,3-Dichloropropene	10	5	U	5	U																
Trichloroethene	10	22		5	U																
Dibromochloromethane	10	5	U	5	U																
1,1,2-Trichloroethane	10	5	U	5	U																
Benzene	10	5	U	5	U																
trans-1,3-Dichloropropene	10	5	U	5	U																
Bromoform	10	5	U	5	U																
4-Methyl-2-pentanone	10	10	U	10	U																
2-Hexanone	10	10	U	10	U																
Tetrachloroethene	10	5	U	5	U																
1,1,2,2-Tetrachloroethane	10	5	U	5	U																
Toluene	10	5	U	5	U																
Chlorobenzene	10	5	U	5	U																
Ethylbenzene	10	5	U	5	U																
Styrene	10	5	U	5	U																
Xylene (total)	10	5	U	5	U																

BLANK AND SAMPLE DATA SUMMARY

SDG: B08YB1	REVIEWER: PS			DATE: 10/21/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Methylene Chloride	5			ug/L	25	50	B08YB1, B08YB3	U

DATA QUALIFICATION SUMMARY

SDG: B08YB1	REVIEWER: PS	DATE: 10/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene Chloride	U	B08YB1, B08YB3	Lab Blank Contamination

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB5																				
Sample Number		B08YB5		B08YB7																	
Location		199-F8-2		199-F8-2																	
Remarks		Split		Split																	
Sample Date		07/24/93		07/24/93																	
Analysis Date		07/30/93		08/02/93																	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U																
Bromomethane	10	10	U	10	U																
Vinyl Chloride	10	10	U	10	U																
Chloroethane	10	10	U	10	U																
Methylene Chloride	10	10	U	1	J																
Acetone	10	10	U	13	U																
Carbon Disulfide	10	10	U	10	U																
1,1-Dichloroethene	10	10	U	10	U																
1,1-Dichloroethane	10	10	U	10	U																
1,2-Dichloroethene (total)	10	10	U	10	U																
Chloroform	10	10	U	10	U																
1,2-Dichloroethane	10	10	U	10	U																
2-Butanone	10	10	U	10	U																
1,1,1-Trichloroethane	10	10	U	10	U																
Carbon Tetrachloride	10	10	U	10	U																
Bromodichloromethane	10	10	U	10	U																
1,2-Dichloropropane	10	10	U	10	U																
cis-1,3-Dichloropropene	10	10	U	10	U																
Trichloroethene	10	10	U	10	U																
Dibromochloromethane	10	10	U	10	U																
1,1,2-Trichloroethane	10	10	U	10	U																
Benzene	10	10	U	10	U																
trans-1,3-Dichloropropene	10	10	U	10	U																
Bromoform	10	10	U	10	U																
4-Methyl-2-pentanone	10	10	U	10	U																
2-Hexanone	10	10	U	10	U																
Tetrachloroethene	10	10	U	10	U																
1,1,2,2-Tetrachloroethane	10	10	U	10	U																
Toluene	10	10	U	4	J																
Chlorobenzene	10	10	U	10	U																
Ethylbenzene	10	10	U	10	U																
Styrene	10	10	U	10	U																
Xylene (total)	10	10	U	10	U																

BLANK AND SAMPLE DATA SUMMARY

SDG: B08YB5	REVIEWER: PS			DATE: 10/22/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Methylene chloride	5	J		ug/L	25	50	B08YB5	U
VBLK	Acetone	5	J		ug/L	25	50	B08YB7	U

DATA QUALIFICATION SUMMARY

SDG: B08YB5	REVIEWER: PS	DATE: 10/22/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene chloride	U	B08YB5	Lab Blank Contamination
Acetone	U	B08YB7	Lab Blank Contamination

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WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	SEMIVOLATILES
199-F1-2	B08Y11	W	07/28/93	NV	3-6, 3-7
199-F5-1	B08Y16	W	07/23/93	NV	3-8, 3-9
199-F5-3	B08Y21	W	07/30/93	NV	3-10, 3-11
199-F5-4	B08Y26	W	07/21/93	NV	3-12, 3-13
199-F5-6	B08Y31	W	07/21/93	NV	3-12, 3-13
199-F5-42	B08Y36	W	07/20/93	NV	3-14, 3-15
199-F5-43A	B08Y41	W	07/18/93	V	3-16, 3-17
199-F5-44	B08Y46	W	07/20/93	NV	3-14, 3-15
199-F5-45	B08Y51	W	07/17/93	V	3-16, 3-17
199-F5-46	B08Y56	W	07/18/93	V	3-16, 3-17
199-F5-47	B08Y61	W	07/18/93	V	3-16, 3-17
199-F5-48	B08Y66	W	07/17/93	V	3-16, 3-17
199-F6-1	B08Y71	W	07/21/93	NV	3-12, 3-13
199-F7-1	B08Y76 B08YB1 B08YC0	W W W	07/19/93 07/19/93 07/19/93	V V V	3-20, 3-21 3-26, 3-27 3-20, 3-21
199-F7-2	B08Y81	W	07/28/93	NV	3-6, 3-7
199-F7-3	B08Y86	W	07/28/93	NV	3-6, 3-7
199-F8-2	B08Y91 B08YB5 B08YC5	W W W	07/24/93 07/24/93 07/24/93	V V V	3-22, 3-23 3-28, 3-29 3-22, 3-23
199-F8-3	B08Y96	W	07/22/93	NV	3-24, 3-25
199-F8-4	B08YF1	W	07/22/93	NV	3-24, 3-25
EB-1	B08YD0	W	07/23/93	V	3-22, 3-23
EB-2	B08YD5	W	7/23/93	V	3-22, 2-23

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3.0 SEMIVOLATILE DATA VALIDATION

3.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y41 B08Y76 B08Y91 B08YB1 B08YB5

3.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the holding time requirements for semivolatile analyses were met by the laboratory. Westinghouse-Hanford protocols require that samples be extracted within seven days of collection and be analyzed within 40 days of extraction (WHC 1992a).

Holding time requirements were met for all samples.

3.3 INSTRUMENT CALIBRATION AND TUNING

3.3.1 GC/MS Tuning/Instrument Performance Check

Tuning is performed to ensure that mass resolution, and to some degree, sensitivity, of the GC/MS instrument has been established. When analyzing for semivolatile organic compounds, the GC/MS is tuned using DFTPP. The GC/MS must be tuned prior to the analysis of either standards or samples, and tuning must meet the criteria established by the analytical protocol. The specific criteria for acceptable GC/MS tuning using DFTPP are outlined in Westinghouse-Hanford procedures (WHC 1992a) and in CLP protocols (EPA 1988b and 1991).

As part of data validation, the original tuning data were checked for transcription and calculation errors to verify that tuning and performance criteria were met.

All tuning and performance criteria were met.

3.3.2 Initial Calibration

The GC/MS instrument is calibrated to ensure that it is capable of producing acceptable and reliable analytical data over a range of concentrations. The initial and continuing calibrations are to be performed according to CLP protocols. An

initial multipoint calibration is performed prior to sample analysis to establish the linearity range of the GC/MS instrument. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

Instrument response is established by the initial calibration when the RRFs for all target compounds are greater than or equal to 0.05 units. Linearity is established when the RSDs of the RRFs are less than or equal to 30 percent.

All initial calibration results were acceptable.

3.3.3 Continuing Calibration

The criteria for accepting the continuing calibration require that a standard be analyzed at least once per 12 hour period and that the RRFs of all target compounds be greater than or equal to 0.05 units. In addition, the percent difference of these RRFs must be less than or equal to 25 percent of the average RRFs calculated for the associated initial calibration.

All continuing calibration results were acceptable.

3.4 BLANKS

Method blank and field blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in associated blanks should be qualified as non-detects; in the case of certain common laboratory contaminants, results less than 10 times the concentrations of that analyte in the associated blanks are qualified as non-detects.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for bis(2-ethylhexyl) phthalate:

- Sample number B08Y56 in SDG No. B08Y41.
- Sample number B08YB5 in SDG No. B08YB5.

Due to the presence of laboratory blank contamination, the following sample was flagged "U" for di-n-butylphthalate:

- Sample number B08YB5 in SDG No. B08YB5.

All other blank results were acceptable.

3.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of stable isotopically labeled surrogate compounds added to all samples and blanks, and by the analysis of a representative sample which was spiked with a variety of organic compounds.

3.5.1 Matrix Spike Recovery

Matrix spike compounds are added to a sample which is representative of the sample delivery group. Matrix spike analyses are performed in duplicate using the six compounds specified by CLP protocols. All recoveries for the compounds should be within the established QC limits (EPA 1988b). The matrix spike analyses estimate how much the analyses for the target compounds are interfered with, either positively or negatively, by the sample matrix. Because the matrix spike is performed using only one of the samples extracted within the SDG, these data alone cannot be used to evaluate the precision and accuracy of individual samples.

All matrix spike/matrix spike duplicate recovery results were acceptable.

3.5.2 Surrogate Recovery

Surrogate compound recoveries are calculated using analytical results from six stable, isotopically labeled surrogate compounds added to the sample prior to sample preparation and analysis. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When recoveries for any two surrogate compounds are out of the control window, all positively identified target compound concentrations in samples associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J" and undetected compounds are qualified estimated below the detection limit and flagged "UJ".

Surrogate recovery results were acceptable for all samples.

3.6 PRECISION

The precision is expressed by the RPD between the recoveries of the matrix spike and the matrix spike duplicate analyses performed on a sample, and through a comparison of the results for field duplicate samples. Acceptable RPD control windows for matrix spike/matrix spike duplicate analyses have been established by the EPA CLP program.

Field precision is measured by analyzing duplicate samples taken in the field. No standards have been established for qualifying data based on RPD for duplicate field samples by CLP

protocols. Westinghouse-Hanford procedures establish the following criteria for duplicate field sample analyses for organic compounds, based on criteria established for inorganic analyses for laboratory duplicates:

1. For compounds whose concentrations are greater than 5 times CRQL, RPDs, must be ±20 percent for aqueous samples and ±35 percent for soil samples.

2. When one or more compounds are present at concentrations less than 5 times CRQL, the concentration difference must be ± CRQL for aqueous samples and ± 2xCRQL for soil samples.

All matrix spike/matrix spike duplicate RPD results were acceptable for all samples.

3.7 INTERNAL STANDARDS PERFORMANCE

Internal standard performance was assessed to determine whether abrupt changes in instrument response and sensitivity occurred that may have affected the reliability of the analytical data. The response (area or height) of the internal standards must not vary by more than -50 percent or +100 percent from the response of the calibration standard that was used to calculate the upper and lower bounds. The upper and lower bounds define the range for acceptable internal standard response (area/height) for the sample analyses. In addition, retention times for the internal standard must not vary more than ±30 seconds from that of the associated calibration standard.

All internal standard results were acceptable.

3.8 COMPOUND IDENTIFICATION AND QUANTITATION

The identities of detected compounds were confirmed to investigate the possibility of false positives. The confirmation of compound identification during the QA review focuses on false positives because only mass spectra for positive identifications are submitted. However, target compounds that are reported as undetected are also evaluated to investigate the possibility of false negatives. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., detection limits, linearity, analytical recovery). Compound retention times and mass spectra must match those for the standard within set to tolerance limits (EPA 1988b).

3.8.1 Reported Results and Quantitation Limits

Compound quantitations and reported detection limits were recalculated and verified to ensure that they are accurate and

are consistent with the internal standards and relative retention times specified by the CLP scope of work.

At concentrations below the CRQL, instrument precision becomes more variable as the IDL is approached. Therefore, the concentrations of any compound detected below the CRQL are qualified as estimates.

All compound identifications and quantitations have been verified as correct in the validated data.

3.8.2 Tentatively Identified Compounds

Chromatographic peaks may be present in an analysis that are not TCL analytes, surrogates, or internal standards and are considered TIC.

The validator verified that spectral library searches were conducted for at least 20 or less candidate TIC. All compounds, including common laboratory contaminants present in the blanks using Westinghouse-Hanford blank review criteria, were qualified as non-detects and flagged "U".

3.9 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, sensitivity) were found during the quality assurance review.

In general, the semivolatile data presented in this report met the protocol-specified QA/QC requirements. Minor laboratory blank contamination was detected in two samples. All other validated data are considered valid and usable within the standard error associated with the method.

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y11																				
Sample Number		B08Y11		B08Y81		B08Y86															
Location		199-F1-2		199-F7-2		199-F7-3															
Remarks		NV		NV		NV															
Sample Date		07/28/93		07/28/93		07/28/93															
Extraction Date		08/02/93		08/02/93		08/02/93															
Analysis Date		08/04/93		08/04/93		08/04/93															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U	10	U														
bis(2-Chloroethyl)ether	10	10	U	10	U	10	U														
2-Chlorophenol	10	10	U	10	U	10	U														
1,3-Dichlorobenzene	10	10	U	10	U	10	U														
1,4-Dichlorobenzene	10	10	U	10	U	10	U														
1,2-Dichlorobenzene	10	10	U	10	U	10	U														
2-Methylphenol	10	10	U	10	U	10	U														
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U	10	U														
4-Methylphenol	10	10	U	10	U	10	U														
N-Nitroso-di-n-propylamine	10	10	U	10	U	10	U														
Hexachloroethane	10	10	U	10	U	10	U														
Nitrobenzene	10	10	U	10	U	10	U														
Isophorone	10	10	U	10	U	10	U														
2-Nitrophenol	10	10	U	10	U	10	U														
2,4-Dimethylphenol	10	10	U	10	U	10	U														
bis(2-Chloroethoxy)methane	10	10	U	10	U	10	U														
2,4-Dichlorophenol	10	10	U	10	U	10	U														
1,2,4-Trichlorobenzene	10	10	U	10	U	10	U														
Naphthalene	10	10	U	10	U	10	U														
4-Chloroaniline	10	10	U	10	U	10	U														
Hexachlorobutadiene	10	10	U	10	U	10	U														
4-Chloro-3-methylphenol	10	10	U	10	U	10	U														
2-Methylnaphthalene	10	10	U	10	U	10	U														
Hexachlorocyclopentadiene	10	10	U	10	U	10	U														
2,4,6-Trichlorophenol	10	10	U	10	U	10	U														
2,4,5-Trichlorophenol	50	25	U	25	U	25	U														
2-Chloronaphthalene	10	10	U	10	U	10	U														
2-Nitroaniline	50	25	U	25	U	25	U														
Dimethylphthalate	10	10	U	10	U	10	U														
Acenaphthylene	10	10	U	10	U	10	U														
3-Nitroaniline	50	25	U	25	U	25	U														
Acenaphthene	10	10	U	10	U	10	U														
2,4-Dinitrophenol	50	25	U	25	U	25	U														

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y11																				
Sample Number		B08Y11		B08Y81		B08Y86															
Location		199-F1-2		199-F7-2		199-F7-3															
Remarks		NV		NV		NV															
Sample Date		07/28/93		07/28/93		07/28/93															
Extraction Date		08/02/93		08/02/93		08/02/93															
Analysis Date		08/04/93		08/04/93		08/04/93															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	U	25	U														
Dibenzofuran	10	10	U	10	U	10	U														
2,4-Dinitrotoluene	10	10	U	10	U	10	U														
2,6-Dinitrotoluene	10	10	U	10	U	10	U														
Diethylphthalate	10	10	U	10	U	10	U														
4-Chlorophenyl-phenylether	10	10	U	10	U	10	U														
Fluorene	10	10	U	10	U	10	U														
4-Nitroaniline	50	25	U	25	U	25	U														
4,6-Dinitro-2-methylphenol	50	25	U	25	U	25	U														
N-Nitrosodiphenylamine	10	10	U	10	U	10	U														
4-Bromophenyl-phenylether	10	10	U	10	U	10	U														
Hexachlorobenzene	10	10	U	10	U	10	U														
Pentachlorophenol	50	25	U	25	U	25	U														
Phenanthrene	10	10	U	10	U	10	U														
Anthracene	10	10	U	10	U	10	U														
Carbazole	10	10	U	10	U	10	U														
Di-n-butylphthalate	10	4	J	2	J	2	J														
Fluoranthene	10	10	U	10	U	10	U														
Pyrene	10	10	U	10	U	10	U														
Butylbenzylphthalate	10	2	J	10	U	10	U														
3,3'-Dichlorobenzidine	10	10	U	10	U	10	U														
Benzo(a)anthracene	10	10	U	10	U	10	U														
bis(2-Ethylhexyl)phthalate	10	10	U	10	U	10	U														
Chrysene	10	10	U	10	U	10	U														
Di-n-octylphthalate	10	10	U	10	U	10	U														
Benzo(b)fluoranthene	10	10	U	10	U	10	U														
Benzo(k)fluoranthene	10	10	U	10	U	10	U														
Benzo(a)pyrene	10	10	U	10	U	10	U														
Indeno(1,2,3-cd)pyrene	10	10	U	10	U	10	U														
Dibenzo(a,h)anthracene	10	10	U	10	U	10	U														
Benzo(g,h,i)perylene	10	10	U	10	U	10	U														

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y16																				
Sample Number		B08Y16																			
Location		199-F5-1																			
Remarks		NV																			
Sample Date		07/23/93																			
Extraction Date		07/30/93																			
Analysis Date		08/04/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U																		
bis(2-Chloroethyl)ether	10	10	U																		
2-Chlorophenol	10	10	U																		
1,3-Dichlorobenzene	10	10	U																		
1,4-Dichlorobenzene	10	10	U																		
1,2-Dichlorobenzene	10	10	U																		
2-Methylphenol	10	10	U																		
2,2'-oxybis(1-Chloropropane)	10	10	U																		
4-Methylphenol	10	10	U																		
N-Nitroso-di-n-propylamine	10	10	U																		
Hexachloroethane	10	10	U																		
Nitrobenzene	10	10	U																		
Isophorone	10	10	U																		
2-Nitrophenol	10	10	U																		
2,4-Dimethylphenol	10	10	U																		
bis(2-Chloroethoxy)methane	10	10	U																		
2,4-Dichlorophenol	10	10	U																		
1,2,4-Trichlorobenzene	10	10	U																		
Naphthalene	10	10	U																		
4-Chloroaniline	10	10	U																		
Hexachlorobutadiene	10	10	U																		
4-Chloro-3-methylphenol	10	10	U																		
2-Methylnaphthalene	10	10	U																		
Hexachlorocyclopentadiene	10	10	U																		
2,4,6-Trichlorophenol	10	10	U																		
2,4,5-Trichlorophenol	50	25	U																		
2-Chloronaphthalene	10	10	U																		
2-Nitroaniline	50	25	U																		
Dimethylphthalate	10	10	U																		
Acenaphthylene	10	10	U																		
2,6-Dinitrotoluene	10	10	U																		
3-Nitroaniline	50	25	U																		
Acenaphthene	10	10	U																		

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y16																				
Sample Number		B08Y16																			
Location		199-F5-1																			
Remarks		NV																			
Sample Date		07/23/93																			
Extraction Date		07/30/93																			
Analysis Date		08/04/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4-Dinitrophenol	50	25	U																		
4-Nitrophenol	50	25	U																		
Dibenzofuran	10	10	U																		
2,4-Dinitrotoluene	10	10	U																		
Diethylphthalate	10	10	U																		
4-Chlorophenyl-phenylether	10	10	U																		
Fluorene	10	10	U																		
4-Nitroaniline	50	25	U																		
4,6-Dinitro-2-methylphenol	50	25	U																		
N-Nitrosodiphenylamine	10	10	U																		
4-Bromophenyl-phenylether	10	10	U																		
Hexachlorobenzene	10	10	U																		
Pentachlorophenol	50	25	U																		
Phenanthrene	10	10	U																		
Anthracene	10	10	U																		
Carbazole	10	10	U																		
Di-n-butylphthalate	10	10	U																		
Fluoranthene	10	10	U																		
Pyrene	10	10	U																		
Butylbenzylphthalate	10	10	U																		
3,3'-Dichlorobenzidine	10	10	U																		
Benzo(a)anthracene	10	10	U																		
bis(2-Ethylhexyl)phthalate	10	10	U																		
Chrysene	10	10	U																		
Di-n-octylphthalate	10	10	U																		
Benzo(b)fluoranthene	10	10	U																		
Benzo(k)fluoranthene	10	10	U																		
Benzo(a)pyrene	10	10	U																		
Indeno(1,2,3-cd)pyrene	10	10	U																		
Dibenzo(a,h)anthracene	10	10	U																		
Benzo(g,h,i)perylene	10	10	U																		

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y21																				
Sample Number		B08Y21																			
Location		199-F5-3																			
Remarks		NV																			
Sample Date		07/30/93																			
Extraction Date		08/04/93																			
Analysis Date		08/09/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U																		
bis(2-Chloroethyl)ether	10	10	U																		
2-Chlorophenol	10	10	U																		
1,3-Dichlorobenzene	10	10	U																		
1,4-Dichlorobenzene	10	10	U																		
1,2-Dichlorobenzene	10	10	U																		
2-Methylphenol	10	10	U																		
2,2'-oxybis(1-Chloropropane)	10	10	U																		
4-Methylphenol	10	10	U																		
N-Nitroso-di-n-propylamine	10	10	U																		
Hexachloroethane	10	10	U																		
Nitrobenzene	10	10	U																		
Isophorone	10	10	U																		
2-Nitrophenol	10	10	U																		
2,4-Dimethylphenol	10	10	U																		
bis(2-Chloroethoxy)methane	10	10	U																		
2,4-Dichlorophenol	10	10	U																		
1,2,4-Trichlorobenzene	10	10	U																		
Naphthalene	10	10	U																		
4-Chloroaniline	10	10	U																		
Hexachlorobutadiene	10	10	U																		
4-Chloro-3-methylphenol	10	10	U																		
2-Methylnaphthalene	10	10	U																		
Hexachlorocyclopentadiene	10	10	U																		
2,4,6-Trichlorophenol	10	10	U																		
2,4,5-Trichlorophenol	50	25	U																		
2-Chloronaphthalene	10	10	U																		
2-Nitroaniline	50	25	U																		
Dimethylphthalate	10	10	U																		
Acenaphthylene	10	10	U																		
3-Nitroaniline	50	25	U																		
Acenaphthene	10	10	U																		
2,4-Dinitrophenol	50	25	U																		

NV = Not Validated

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y21																				
Sample Number		B08Y21																			
Location		199-F5-3																			
Remarks		NV																			
Sample Date		07/30/93																			
Extraction Date		08/04/93																			
Analysis Date		08/09/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U																		
Dibenzofuran	10	10	U																		
2,4-Dinitrotoluene	10	10	U																		
2,6-Dinitrotoluene	10	10	U																		
Diethylphthalate	10	10	U																		
4-Chlorophenyl-phenylether	10	10	U																		
Fluorene	10	10	U																		
4-Nitroaniline	50	25	U																		
4,6-Dinitro-2-methylphenol	50	25	U																		
N-Nitrosodiphenylamine	10	10	U																		
4-Bromophenyl-phenylether	10	10	U																		
Hexachlorobenzene	10	10	U																		
Pentachlorophenol	50	25	U																		
Phenanthrene	10	10	U																		
Anthracene	10	10	U																		
Carbazole	10	10	U																		
Di-n-butylphthalate	10	10	U																		
Fluoranthene	10	10	U																		
Pyrene	10	10	U																		
Butylbenzylphthalate	10	10	U																		
3,3'-Dichlorobenzidine	10	10	U																		
Benzo(a)anthracene	10	10	U																		
bis(2-Ethylhexyl)phthalate	10	3	J																		
Chrysene	10	10	U																		
Di-n-octylphthalate	10	10	U																		
Benzo(b)fluoranthene	10	10	U																		
Benzo(k)fluoranthene	10	10	U																		
Benzo(a)pyrene	10	10	U																		
Indeno(1,2,3-cd)pyrene	10	10	U																		
Dibenzo(a,h)anthracene	10	10	U																		
Benzo(g,h,i)perylene	10	10	U																		

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y26																		
Sample Number		B08Y26		B08Y31		B08Y71													
Location		199-F5-4		199-F5-6		199-F6-1													
Remarks		NV		NV		NV													
Sample Date		07/21/93		07/21/93		07/21/93													
Extraction Date		07/27/93		07/27/93		07/27/93													
Analysis Date		08/02/93		08/02/93		08/02/93													
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U	10	U														
bis(2-Chloroethyl)ether	10	10	U	10	U	10	U														
2-Chlorophenol	10	10	U	10	U	10	U														
1,3-Dichlorobenzene	10	10	U	10	U	10	U														
1,4-Dichlorobenzene	10	10	U	10	U	10	U														
1,2-Dichlorobenzene	10	10	U	10	U	10	U														
2-Methylphenol	10	10	U	10	U	10	U														
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U	10	U														
4-Methylphenol	10	10	U	10	U	10	U														
N-Nitroso-di-n-propylamine	10	10	U	10	U	10	U														
Hexachloroethane	10	10	U	10	U	10	U														
Nitrobenzene	10	10	U	10	U	10	U														
Isophorone	10	10	U	10	U	10	U														
2-Nitrophenol	10	10	U	10	U	10	U														
2,4-Dimethylphenol	10	10	U	10	U	10	U														
bis(2-Chloroethoxy)methane	10	10	U	10	U	10	U														
2,4-Dichlorophenol	10	10	U	10	U	10	U														
1,2,4-Trichlorobenzene	10	10	U	10	U	10	U														
Naphthalene	10	10	U	10	U	10	U														
4-Chloroaniline	10	10	U	10	U	10	U														
Hexachlorobutadiene	10	10	U	10	U	10	U														
4-Chloro-3-methylphenol	10	10	U	10	U	10	U														
2-Methylnaphthalene	10	10	U	10	U	10	U														
Hexachlorocyclopentadiene	10	10	U	10	U	10	U														
2,4,6-Trichlorophenol	10	10	U	10	U	10	U														
2,4,5-Trichlorophenol	50	25	U	25	U	25	U														
2-Chloronaphthalene	10	10	U	10	U	10	U														
2-Nitroaniline	50	25	U	25	U	25	U														
Dimethylphthalate	10	10	U	10	U	10	U														
Acenaphthylene	10	10	U	10	U	10	U														
3-Nitroaniline	50	25	U	25	U	25	U														
Acenaphthene	10	10	U	10	U	10	U														
2,4-Dinitrophenol	50	25	U	25	U	25	U														

NV = Not Validated

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y26																				
Sample Number		B08Y26		B08Y31		B08Y71															
Location		199-F5-4		199-F5-6		199-F6-1															
Remarks		NV		NV		NV															
Sample Date		07/21/93		07/21/93		07/21/93															
Extraction Date		07/27/93		07/27/93		07/27/93															
Analysis Date		08/02/93		08/02/93		08/02/93															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	U	25	U														
Dibenzofuran	10	10	U	10	U	10	U														
2,4-Dinitrotoluene	10	10	U	10	U	10	U														
2,6-Dinitrotoluene	10	10	U	10	U	10	U														
Diethylphthalate	10	10	U	10	U	10	U														
4-Chlorophenyl-phenylether	10	10	U	10	U	10	U														
Fluorene	10	10	U	10	U	10	U														
4-Nitroaniline	50	25	U	25	U	25	U														
4,6-Dinitro-2-methylphenol	50	25	U	25	U	25	U														
N-Nitrosodiphenylamine	10	10	U	10	U	10	U														
4-Bromophenyl-phenylether	10	10	U	10	U	10	U														
Hexachlorobenzene	10	10	U	10	U	10	U														
Pentachlorophenol	50	25	U	25	U	25	U														
Phenanthrene	10	10	U	10	U	10	U														
Anthracene	10	10	U	10	U	10	U														
Carbazole	10	10	U	10	U	10	U														
Di-n-butylphthalate	10	10	U	10	U	10	U														
Fluoranthene	10	10	U	10	U	10	U														
Pyrene	10	10	U	10	U	10	U														
Butylbenzylphthalate	10	10	U	10	U	10	U														
3,3'-Dichlorobenzidine	10	10	U	10	U	10	U														
Benzo(a)anthracene	10	10	U	10	U	10	U														
bis(2-Ethylhexyl)phthalate	10	3	J	10	U	10	U														
Chrysene	10	10	U	10	U	10	U														
Di-n-octylphthalate	10	10	U	10	U	10	U														
Benzo(b)fluoranthene	10	10	U	10	U	10	U														
Benzo(k)fluoranthene	10	10	U	10	U	10	U														
Benzo(a)pyrene	10	10	U	10	U	10	U														
Indeno(1,2,3-cd)pyrene	10	10	U	10	U	10	U														
Dibenzo(a,h)anthracene	10	10	U	10	U	10	U														
Benzo(g,h,i)perylene	10	10	U	10	U	10	U														

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y36																				
Sample Number		B08Y36		B08Y46																	
Location		199-F5-42		199-F5-44																	
Remarks		NV		NV																	
Sample Date		07/20/93		07/20/93																	
Extraction Date		07/23/93		07/23/93																	
Analysis Date		08/02/93		08/02/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U																
bis(2-Chloroethyl)ether	10	10	U	10	U																
2-Chlorophenol	10	10	U	10	U																
1,3-Dichlorobenzene	10	10	U	10	U																
1,4-Dichlorobenzene	10	10	U	10	U																
1,2-Dichlorobenzene	10	10	U	10	U																
2-Methylphenol	10	10	U	10	U																
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U																
4-Methylphenol	10	10	U	10	U																
N-Nitroso-di-n-propylamine	10	10	U	10	U																
Hexachloroethane	10	10	U	10	U																
Nitrobenzene	10	10	U	10	U																
Isophorone	10	10	U	10	U																
2-Nitrophenol	10	10	U	10	U																
2,4-Dimethylphenol	10	10	U	10	U																
bis(2-Chloroethoxy)methane	10	10	U	10	U																
2,4-Dichlorophenol	10	10	U	10	U																
1,2,4-Trichlorobenzene	10	10	U	10	U																
Naphthalene	10	10	U	10	U																
4-Chloroaniline	10	10	U	10	U																
Hexachlorobutadiene	10	10	U	10	U																
4-Chloro-3-methylphenol	10	10	U	10	U																
2-Methylnaphthalene	10	10	U	10	U																
Hexachlorocyclopentadiene	10	10	U	10	U																
2,4,6-Trichlorophenol	10	10	U	10	U																
2,4,5-Trichlorophenol	50	25	U	25	U																
2-Chloronaphthalene	10	10	U	10	U																
2-Nitroaniline	50	25	U	25	U																
Dimethylphthalate	10	10	U	10	U																
Acenaphthylene	10	10	U	10	U																
3-Nitroaniline	50	25	U	25	U																
Acenaphthene	10	10	U	10	U																
2,4-Dinitrophenol	50	25	U	25	U																

NV = Not Validated

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y36																				
Sample Number		B08Y36		B08Y46																	
Location		199-F5-42		199-F5-44																	
Remarks		NV		NV																	
Sample Date		07/20/93		07/20/93																	
Extraction Date		07/23/93		07/23/93																	
Analysis Date		08/02/93		08/02/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	U																
Dibenzofuran	10	10	U	10	U																
2,4-Dinitrotoluene	10	10	U	10	U																
2,6-Dinitrotoluene	10	10	U	10	U																
Diethylphthalate	10	10	U	10	U																
4-Chlorophenyl-phenylether	10	10	U	10	U																
Fluorene	10	10	U	10	U																
4-Nitroaniline	50	25	U	25	U																
4,6-Dinitro-2-methylphenol	50	25	U	25	U																
N-Nitrosodiphenylamine	10	10	U	10	U																
4-Bromophenyl-phenylether	10	10	U	10	U																
Hexachlorobenzene	10	10	U	10	U																
Pentachlorophenol	50	25	U	25	U																
Phenanthrene	10	10	U	10	U																
Anthracene	10	10	U	10	U																
Carbazole	10	10	U	10	U																
Di-n-butylphthalate	10	10	U	10	U																
Fluoranthene	10	10	U	10	U																
Pyrene	10	10	U	10	U																
Butylbenzylphthalate	10	10	U	10	U																
3,3'-Dichlorobenzidine	10	10	U	10	U																
Benzo(a)anthracene	10	10	U	10	U																
bis(2-Ethylhexyl)phthalate	10	10	U	10	U																
Chrysene	10	10	U	10	U																
Di-n-octylphthalate	10	10	U	10	U																
Benzo(b)fluoranthene	10	10	U	10	U																
Benzo(k)fluoranthene	10	10	U	10	U																
Benzo(a)pyrene	10	10	U	10	U																
Indeno(1,2,3-cd)pyrene	10	10	U	10	U																
Dibenzo(a,h)anthracene	10	10	U	10	U																
Benzo(g,h,i)perylene	10	10	U	10	U																

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y41																				
Sample Number		B08Y41		B08Y51		B08Y56		B08Y61		B08Y66											
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48											
Remarks																					
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93											
Extraction Date		07/22/93		07/22/93		07/22/93		07/22/93		07/22/93											
Analysis Date		07/30/93		07/30/93		07/30/93		07/30/93		07/30/93											
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U	10	U	10	U	10	U										
bis(2-Chloroethyl)ether	10	10	U	10	U	10	U	10	U	10	U										
2-Chlorophenol	10	10	U	10	U	10	U	10	U	10	U										
1,3-Dichlorobenzene	10	10	U	10	U	10	U	10	U	10	U										
1,4-Dichlorobenzene	10	10	U	10	U	10	U	10	U	10	U										
1,2-Dichlorobenzene	10	10	U	10	U	10	U	10	U	10	U										
2-Methylphenol	10	10	U	10	U	10	U	10	U	10	U										
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U	10	U	10	U	10	U										
4-Methylphenol	10	10	U	10	U	10	U	10	U	10	U										
N-Nitroso-di-n-propylamine	10	10	U	10	U	10	U	10	U	10	U										
Hexachloroethane	10	10	U	10	U	10	U	10	U	10	U										
Nitrobenzene	10	10	U	10	U	10	U	10	U	10	U										
Isophorone	10	10	U	10	U	10	U	10	U	10	U										
2-Nitrophenol	10	10	U	10	U	10	U	10	U	10	U										
2,4-Dimethylphenol	10	10	U	10	U	10	U	10	U	10	U										
bis(2-Chloroethoxy)methane	10	10	U	10	U	10	U	10	U	10	U										
2,4-Dichlorophenol	10	10	U	10	U	10	U	10	U	10	U										
1,2,4-Trichlorobenzene	10	10	U	10	U	10	U	10	U	10	U										
Naphthalene	10	10	U	10	U	10	U	10	U	10	U										
4-Chloroaniline	10	10	U	10	U	10	U	10	U	10	U										
Hexachlorobutadiene	10	10	U	10	U	10	U	10	U	10	U										
4-Chloro-3-methylphenol	10	10	U	10	U	10	U	10	U	10	U										
2-Methylnaphthalene	10	10	U	10	U	10	U	10	U	10	U										
Hexachlorocyclopentadiene	10	10	U	10	U	10	U	10	U	10	U										
2,4,6-Trichlorophenol	10	10	U	10	U	10	U	10	U	10	U										
2,4,5-Trichlorophenol	50	25	U	25	U	25	U	25	U	25	U										
2-Chloronaphthalene	10	10	U	10	U	10	U	10	U	10	U										
2-Nitroaniline	50	25	U	25	U	25	U	25	U	25	U										
Dimethylphthalate	10	10	U	10	U	10	U	10	U	10	U										
Acenaphthylene	10	10	U	10	U	10	U	10	U	10	U										
3-Nitroaniline	50	25	U	25	U	25	U	25	U	25	U										
Acenaphthene	10	10	U	10	U	10	U	10	U	10	U										
2,4-Dinitrophenol	50	25	U	25	U	25	U	25	U	25	U										

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y41																				
Sample Number		B08Y41		B08Y51		B08Y56		B08Y61		B08Y66											
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48											
Remarks																					
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93											
Extraction Date		07/22/93		07/22/93		07/22/93		07/22/93		07/22/93											
Analysis Date		07/30/93		07/30/93		07/30/93		07/30/93		07/30/93											
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	U	25	U	25	U	25	U										
Dibenzofuran	10	10	U	10	U	10	U	10	U	10	U										
2,4-Dinitrotoluene	10	10	U	10	U	10	U	10	U	10	U										
2,6-Dinitrotoluene	10	10	U	10	U	10	U	10	U	10	U										
Diethylphthalate	10	10	U	10	U	10	U	10	U	10	U										
4-Chlorophenyl-phenylether	10	10	U	10	U	10	U	10	U	10	U										
Fluorene	10	10	U	10	U	10	U	10	U	10	U										
4-Nitroaniline	50	25	U	25	U	25	U	25	U	25	U										
4,6-Dinitro-2-methylphenol	50	25	U	25	U	25	U	25	U	25	U										
N-Nitrosodiphenylamine	10	10	U	10	U	10	U	10	U	10	U										
4-Bromophenyl-phenylether	10	10	U	10	U	10	U	10	U	10	U										
Hexachlorobenzene	10	10	U	10	U	10	U	10	U	10	U										
Pentachlorophenol	50	25	U	25	U	25	U	25	U	25	U										
Phenanthrene	10	10	U	10	U	10	U	10	U	10	U										
Anthracene	10	10	U	10	U	10	U	10	U	10	U										
Carbazole	10	10	U	10	U	10	U	10	U	10	U										
Di-n-butylphthalate	10	10	U	10	U	10	U	10	U	10	U										
Fluoranthene	10	10	U	10	U	10	U	10	U	10	U										
Pyrene	10	10	U	10	U	10	U	10	U	10	U										
Butylbenzylphthalate	10	10	U	10	U	10	U	10	U	10	U										
3,3'-Dichlorobenzidine	10	10	U	10	U	10	U	10	U	10	U										
Benzo(a)anthracene	10	10	U	10	U	10	U	10	U	10	U										
bis(2-Ethylhexyl)phthalate	10	10	U	10	U	10	U	10	U	10	U										
Chrysene	10	10	U	10	U	10	U	10	U	10	U										
Di-n-octylphthalate	10	10	U	10	U	10	U	10	U	10	U										
Benzo(b)fluoranthene	10	10	U	10	U	10	U	10	U	10	U										
Benzo(k)fluoranthene	10	10	U	10	U	10	U	10	U	10	U										
Benzo(a)pyrene	10	10	U	10	U	10	U	10	U	10	U										
Indeno(1,2,3-cd)pyrene	10	10	U	10	U	10	U	10	U	10	U										
Dibenzo(a,h)anthracene	10	10	U	10	U	10	U	10	U	10	U										
Benzo(g,h,i)perylene	10	10	U	10	U	10	U	10	U	10	U										

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y41	REVIEWER: PS			DATE: 10/19/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SBLK0722C	bis(2-Ethylhexyl) phthalate	1	J		ug/L	5	10	B08Y56	U

DATA QUALIFICATION SUMMARY

SDG: B08Y41	REVIEWER: PS	DATE: 10/19/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
bis(2-Ethylhexyl)phthalate	U	B08Y56	Lab Blank Contamination

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y76																				
Sample Number		B08Y76		B08YC0																	
Location		199-F7-1		199-F7-1																	
Remarks				DUP																	
Sample Date		07/19/93		07/19/93																	
Extraction Date		07/23/93		07/23/93																	
Analysis Date		07/30/93		07/30/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U																
bis(2-Chloroethyl)ether	10	10	U	10	U																
2-Chlorophenol	10	10	U	10	U																
1,3-Dichlorobenzene	10	10	U	10	U																
1,4-Dichlorobenzene	10	10	U	10	U																
1,2-Dichlorobenzene	10	10	U	10	U																
2-Methylphenol	10	10	U	10	U																
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U																
4-Methylphenol	10	10	U	10	U																
N-Nitroso-di-n-propylamine	10	10	U	10	U																
Hexachloroethane	10	10	U	10	U																
Nitrobenzene	10	10	U	10	U																
Isophorone	10	10	U	10	U																
2-Nitrophenol	10	10	U	10	U																
2,4-Dimethylphenol	10	10	U	10	U																
bis(2-Chloroethoxy)methane	10	10	U	10	U																
2,4-Dichlorophenol	10	10	U	10	U																
1,2,4-Trichlorobenzene	10	10	U	10	U																
Naphthalene	10	10	U	10	U																
4-Chloroaniline	10	10	U	10	U																
Hexachlorobutadiene	10	10	U	10	U																
4-Chloro-3-methylphenol	10	10	U	10	U																
2-Methylnaphthalene	10	10	U	10	U																
Hexachlorocyclopentadiene	10	10	U	10	U																
2,4,6-Trichlorophenol	10	10	U	10	U																
2,4,5-Trichlorophenol	50	25	U	25	U																
2-Chloronaphthalene	10	10	U	10	U																
2-Nitroaniline	50	25	U	25	U																
Dimethylphthalate	10	10	U	10	U																
Acenaphthylene	10	10	U	10	U																
3-Nitroaniline	50	25	U	25	U																
Acenaphthene	10	10	U	10	U																
2,4-Dinitrophenol	50	25	U	25	U																

DUP = Duplicate

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y76																				
Sample Number		B08Y76		B08YC0																	
Location		199-F7-1		199-F7-1																	
Remarks				DUP																	
Sample Date		07/19/93		07/19/93																	
Extraction Date		07/23/93		07/23/93																	
Analysis Date		07/30/93		07/30/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	U																
Dibenzofuran	10	10	U	10	U																
2,4-Dinitrotoluene	10	10	U	10	U																
2,6-Dinitrotoluene	10	10	U	10	U																
Diethylphthalate	10	10	U	10	U																
4-Chlorophenyl-phenylether	10	10	U	10	U																
Fluorene	10	10	U	10	U																
4-Nitroaniline	50	25	U	25	U																
4,6-Dinitro-2-methylphenol	50	25	U	25	U																
N-Nitrosodiphenylamine	10	10	U	10	U																
4-Bromophenyl-phenylether	10	10	U	10	U																
Hexachlorobenzene	10	10	U	10	U																
Pentachlorophenol	50	25	U	25	U																
Phenanthrene	10	10	U	10	U																
Anthracene	10	10	U	10	U																
Carbazole	10	10	U	10	U																
Di-n-butylphthalate	10	10	U	10	U																
Fluoranthene	10	10	U	10	U																
Pyrene	10	10	U	10	U																
Butylbenzylphthalate	10	10	U	10	U																
3,3'-Dichlorobenzidine	10	10	U	10	U																
Benzo(a)anthracene	10	10	U	10	U																
bis(2-Ethylhexyl)phthalate	10	7	J	10	U																
Chrysene	10	10	U	10	U																
Di-n-octylphthalate	10	10	U	10	U																
Benzo(b)fluoranthene	10	10	U	10	U																
Benzo(k)fluoranthene	10	10	U	10	U																
Benzo(a)pyrene	10	10	U	10	U																
Indeno(1,2,3-cd)pyrene	10	10	U	10	U																
Dibenzo(a,h)anthracene	10	10	U	10	U																
Benzo(g,h,i)perylene	10	10	U	10	U																

DUP = Duplicate

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y91																				
Sample Number		B08Y91		B08YC5		B08YD0		B08YD5													
Location		199-F8-2		199-F8-2		EB-1		EB-2													
Remarks				DUP		EB		EB													
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93													
Extraction Date		07/28/93		07/28/93		07/28/93		07/28/93													
Analysis Date		08/04/93		08/04/93		08/04/93		08/04/93													
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U	10	U	10	U												
bis(2-Chloroethyl)ether	10	10	U	10	U	10	U	10	U												
2-Chlorophenol	10	10	U	10	U	10	U	10	U												
1,3-Dichlorobenzene	10	10	U	10	U	10	U	10	U												
1,4-Dichlorobenzene	10	10	U	10	U	10	U	10	U												
1,2-Dichlorobenzene	10	10	U	10	U	10	U	10	U												
2-Methylphenol	10	10	U	10	U	10	U	10	U												
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U	10	U	10	U												
4-Methylphenol	10	10	U	10	U	10	U	10	U												
N-Nitroso-di-n-propylamine	10	10	U	10	U	10	U	10	U												
Hexachloroethane	10	10	U	10	U	10	U	10	U												
Nitrobenzene	10	10	U	10	U	10	U	10	U												
Isophorone	10	10	U	10	U	10	U	10	U												
2-Nitrophenol	10	10	U	10	U	10	U	10	U												
2,4-Dimethylphenol	10	10	U	10	U	10	U	10	U												
bis(2-Chloroethoxy)methane	10	10	U	10	U	10	U	10	U												
2,4-Dichlorophenol	10	10	U	10	U	10	U	10	U												
1,2,4-Trichlorobenzene	10	10	U	10	U	10	U	10	U												
Naphthalene	10	10	U	10	U	10	U	10	U												
4-Chloroaniline	10	10	U	10	U	10	U	10	U												
Hexachlorobutadiene	10	10	U	10	U	10	U	10	U												
4-Chloro-3-methylphenol	10	10	U	10	U	10	U	10	U												
2-Methylnaphthalene	10	10	U	10	U	10	U	10	U												
Hexachlorocyclopentadiene	10	10	U	10	U	10	U	10	U												
2,4,6-Trichlorophenol	10	10	U	10	U	10	U	10	U												
2,4,5-Trichlorophenol	50	25	U	25	U	25	U	25	U												
2-Chloronaphthalene	10	10	U	10	U	10	U	10	U												
2-Nitroaniline	50	25	U	25	U	25	U	25	U												
Dimethylphthalate	10	10	U	10	U	10	U	10	U												
Acenaphthylene	10	10	U	10	U	10	U	10	U												
3-Nitroaniline	50	25	U	25	U	25	U	25	U												
Acenaphthene	10	10	U	10	U	10	U	10	U												
2,4-Dinitrophenol	50	25	U	25	U	25	U	25	U												

DUP Duplicate, EB = Equipment Blank

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y91																				
Sample Number		B08Y91		B08YC5		B08YD0		B08YD5													
Location		199-F8-2		199-F8-2		EB-1		EB-2													
Remarks				DUP		EB		EB													
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93													
Extraction Date		07/28/93		07/28/93		07/28/93		07/28/93													
Analysis Date		08/04/93		08/04/93		08/04/93		08/04/93													
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	U	25	U	25	U												
Dibenzofuran	10	10	U	10	U	10	U	10	U												
2,4-Dinitrotoluene	10	10	U	10	U	10	U	10	U												
2,6-Dinitrotoluene	10	10	U	10	U	10	U	10	U												
Diethylphthalate	10	10	U	10	U	10	U	10	U												
4-Chlorophenyl-phenylether	10	10	U	10	U	10	U	10	U												
Fluorene	10	10	U	10	U	10	U	10	U												
4-Nitroaniline	50	25	U	25	U	25	U	25	U												
4,6-Dinitro-2-methylphenol	50	25	U	25	U	25	U	25	U												
N-Nitrosodiphenylamine	10	10	U	10	U	10	U	10	U												
4-Bromophenyl-phenylether	10	10	U	10	U	10	U	10	U												
Hexachlorobenzene	10	10	U	10	U	10	U	10	U												
Pentachlorophenol	50	25	U	25	U	25	U	25	U												
Phenanthrene	10	10	U	10	U	10	U	10	U												
Anthracene	10	10	U	10	U	10	U	10	U												
Carbazole	10	10	U	10	U	10	U	10	U												
Di-n-butylphthalate	10	10	U	10	U	10	U	10	U												
Fluoranthene	10	10	U	10	U	10	U	10	U												
Pyrene	10	10	U	10	U	10	U	10	U												
Butylbenzylphthalate	10	10	U	10	U	10	U	10	U												
3,3'-Dichlorobenzidine	10	10	U	10	U	10	U	10	U												
Benzo(a)anthracene	10	10	U	10	U	10	U	10	U												
bis(2-Ethylhexyl)phthalate	10	10		10	U	10	U	10	U												
Chrysene	10	10	U	10	U	10	U	10	U												
Di-n-octylphthalate	10	10	U	10	U	10	U	10	U												
Benzo(b)fluoranthene	10	10	U	10	U	10	U	10	U												
Benzo(k)fluoranthene	10	10	U	10	U	10	U	10	U												
Benzo(a)pyrene	10	10	U	10	U	10	U	10	U												
Indeno(1,2,3-cd)pyrene	10	10	U	10	U	10	U	10	U												
Dibenzo(a,h)anthracene	10	10	U	10	U	10	U	10	U												
Benzo(g,h,i)perylene	10	10	U	10	U	10	U	10	U												

DUP = Duplicate, EB = Equipment Blank

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y96																				
Sample Number		B08Y96		B08YF1																	
Location		199-F8-3		199-F8-4																	
Remarks		NV		NV																	
Sample Date		07/22/93		07/22/93																	
Extraction Date		07/28/93		07/28/93																	
Analysis Date		08/02/93		08/03/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U	10	U																
bis(2-Chloroethyl)ether	10	10	U	10	U																
2-Chlorophenol	10	10	U	10	U																
1,3-Dichlorobenzene	10	10	U	10	U																
1,4-Dichlorobenzene	10	10	U	10	U																
1,2-Dichlorobenzene	10	10	U	10	U																
2-Methylphenol	10	10	U	10	U																
2,2'-oxybis(1-Chloropropane)	10	10	U	10	U																
4-Methylphenol	10	10	U	10	U																
N-Nitroso-di-n-propylamine	10	10	U	10	U																
Hexachloroethane	10	10	U	10	U																
Nitrobenzene	10	10	U	10	U																
Isophorone	10	10	U	10	U																
2-Nitrophenol	10	10	U	10	U																
2,4-Dimethylphenol	10	10	U	10	U																
bis(2-Chloroethoxy)methane	10	10	U	10	U																
2,4-Dichlorophenol	10	10	U	10	U																
1,2,4-Trichlorobenzene	10	10	U	10	U																
Naphthalene	10	10	U	10	U																
4-Chloroaniline	10	10	U	10	U																
Hexachlorobutadiene	10	10	U	10	U																
4-Chloro-3-methylphenol	10	10	U	10	U																
2-Methylnaphthalene	10	10	U	10	U																
Hexachlorocyclopentadiene	10	10	U	10	U																
2,4,6-Trichlorophenol	10	10	U	10	U																
2,4,5-Trichlorophenol	50	25	U	25	U																
2-Chloronaphthalene	10	10	U	10	U																
2-Nitroaniline	50	25	U	25	U																
Dimethylphthalate	10	10	U	10	U																
Acenaphthylene	10	10	U	10	U																
3-Nitroaniline	50	25	U	25	U																
Acenaphthene	10	10	U	10	U																
2,4-Dinitrophenol	50	25	U	25	U																

NV = * Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y96																				
Sample Number		B08Y96		B08YF1																	
Location		199-F8-3		199-F8-4																	
Remarks		NV		NV																	
Sample Date		07/22/93		07/22/93																	
Extraction Date		07/28/93		07/28/93																	
Analysis Date		08/02/93		08/03/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	50	25	U	25	U																
Dibenzofuran	10	10	U	10	U																
2,4-Dinitrotoluene	10	10	U	10	U																
2,6-Dinitrotoluene	10	10	U	10	U																
Diethylphthalate	10	10	U	10	U																
4-Chlorophenyl-phenylether	10	10	U	10	U																
Fluorene	10	10	U	10	U																
4-Nitroaniline	50	25	U	25	U																
4,6-Dinitro-2-methylphenol	50	25	U	25	U																
N-Nitrosodiphenylamine	10	10	U	10	U																
4-Bromophenyl-phenylether	10	10	U	10	U																
Hexachlorobenzene	10	10	U	10	U																
Pentachlorophenol	50	25	U	25	U																
Phenanthrene	10	10	U	10	U																
Anthracene	10	10	U	10	U																
Carbazole	10	10	U	10	U																
Di-n-butylphthalate	10	10	U	10	U																
Fluoranthene	10	10	U	10	U																
Pyrene	10	10	U	10	U																
Butylbenzylphthalate	10	10	U	10	U																
3,3'-Dichlorobenzidine	10	10	U	10	U																
Benzo(a)anthracene	10	10	U	10	U																
bis(2-Ethylhexyl)phthalate	10	10	U	10	U																
Chrysene	10	10	U	10	U																
Di-n-octylphthalate	10	10	U	10	U																
Benzo(b)fluoranthene	10	10	U	10	U																
Benzo(k)fluoranthene	10	10	U	10	U																
Benzo(a)pyrene	10	10	U	10	U																
Indeno(1,2,3-cd)pyrene	10	10	U	10	U																
Dibenzo(a,h)anthracene	10	10	U	10	U																
Benzo(g,h,i)perylene	10	10	U	10	U																

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB1																				
Sample Number		B08YB1																			
Location		199-F7-1																			
Remarks		Split																			
Sample Date		07/19/93																			
Extraction Date		07/26/93																			
Analysis Date		08/04/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U																		
bis(2-Chloroethyl)ether	10	10	U																		
2-Chlorophenol	10	10	U																		
1,3-Dichlorobenzene	10	10	U																		
1,4-Dichlorobenzene	10	10	U																		
Benzyl Alcohol	10	10	U																		
1,2-Dichlorobenzene	10	10	U																		
2-Methylphenol	10	10	U																		
bis(2-Chloroisopropyl)ether	10	10	U																		
4-Methylphenol	10	10	U																		
N-Nitroso-di-n-propylamine	10	10	U																		
Hexachloroethane	10	10	U																		
Nitrobenzene	10	10	U																		
Isophorone	10	10	U																		
2-Nitrophenol	10	10	U																		
2,4-Dimethylphenol	10	10	U																		
Benzoic Acid	50	50	U																		
bis(2-Chloroethoxy)methane	10	10	U																		
2,4-Dichlorophenol	10	10	U																		
1,2,4-Trichlorobenzene	10	10	U																		
Naphthalene	10	10	U																		
4-Chloroaniline	10	10	U																		
Hexachlorobutadiene	10	10	U																		
4-Chloro-3-methylphenol	10	10	U																		
2-Methylnaphthalene	10	10	U																		
Hexachlorocyclopentadiene	10	10	U																		
2,4,6-Trichlorophenol	10	10	U																		
2,4,5-Trichlorophenol	50	50	U																		
2-Chloronaphthalene	10	10	U																		
2-Nitroaniline	50	50	U																		
Dimethylphthalate	10	10	U																		
Acenaphthylene	10	10	U																		
2,6-Dinitrotoluene	10	10	U																		

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB1																				
Sample Number		B08YB1																			
Location		199-F7-1																			
Remarks		Split																			
Sample Date		07/19/93																			
Extraction Date		07/26/93																			
Analysis Date		08/04/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	50	50	U																		
Acenaphthene	10	10	U																		
2,4-Dinitrophenol	50	50	U																		
4-Nitrophenol	50	50	U																		
Dibenzofuran	10	10	U																		
2,4-Dinitrotoluene	10	10	U																		
Diethylphthalate	10	10	U																		
4-Chlorophenyl-phenylether	10	10	U																		
Fluorene	10	10	U																		
4-Nitroaniline	50	50	U																		
4,6-Dinitro-2-methylphenol	50	50	U																		
N-Nitrosodiphenylamine	10	10	U																		
4-Bromophenyl-phenylether	10	10	U																		
Hexachlorobenzene	10	10	U																		
Pentachlorophenol	50	50	U																		
Phenanthrene	10	10	U																		
Anthracene	10	10	U																		
Di-n-butylphthalate	10	1	J																		
Fluoranthene	10	10	U																		
Pyrene	10	10	U																		
Butylbenzylphthalate	10	10	U																		
3,3'-Dichlorobenzidine	10	20	U																		
Benzo(a)anthracene	10	10	U																		
Chrysene	10	10	U																		
bis(2-Ethylhexyl)phthalate	10	10	U																		
Di-n-octylphthalate	10	10	U																		
Benzo(b)fluoranthene	10	10	U																		
Benzo(k)fluoranthene	10	10	U																		
Benzo(a)pyrene	10	10	U																		
Indeno(1,2,3-cd)pyrene	10	10	U																		
Dibenzo(a,h)anthracene	10	10	U																		
Benzo(g,h,I)perylene	10	10	U																		

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB5																				
Sample Number		B08YB5																			
Location		199-F8-2																			
Remarks		Split																			
Sample Date		07/24/93																			
Extraction Date		07/28/93																			
Analysis Date		08/02/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	2	J																		
bis(2-Chloroethyl)ether	10	10	U																		
2-Chlorophenol	10	10	U																		
1,3-Dichlorobenzene	10	10	U																		
1,4-Dichlorobenzene	10	10	U																		
1,2-Dichlorobenzene	10	10	U																		
2-Methylphenol	10	10	U																		
2,2'-oxybis(1-Chloropropane)	10	10	U																		
4-Methylphenol	10	10	U																		
N-Nitroso-di-n-propylamine	10	10	U																		
Hexachloroethane	10	10	U																		
Nitrobenzene	10	10	U																		
Isophorone	10	10	U																		
2-Nitrophenol	10	10	U																		
2,4-Dimethylphenol	10	10	U																		
bis(2-Chloroethoxy)methane	10	10	U																		
2,4-Dichlorophenol	10	10	U																		
1,2,4-Trichlorobenzene	10	10	U																		
Naphthalene	10	10	U																		
4-Chloroaniline	10	10	U																		
Hexachlorobutadiene	10	10	U																		
4-Chloro-3-methylphenol	10	10	U																		
2-Methylnaphthalene	10	10	U																		
Hexachlorocyclopentadiene	10	10	U																		
2,4,6-Trichlorophenol	10	10	U																		
2,4,5-Trichlorophenol	50	25	U																		
2-Chloronaphthalene	10	10	U																		
2-Nitroaniline	50	25	U																		
Dimethylphthalate	10	10	U																		
Acenaphthylene	10	10	U																		
2,6-Dinitrotoluene	10	10	U																		
3-Nitroaniline	50	25	U																		
Acenaphthene	10	10	U																		

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB5																				
Sample Number		B08YB5																			
Location		199-F8-2																			
Remarks		Split																			
Sample Date		07/24/93																			
Extraction Date		07/28/93																			
Analysis Date		08/02/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4-Dinitrophenol	50	25	U																		
4-Nitrophenol	50	25	U																		
Dibenzofuran	10	10	U																		
2,4-Dinitrotoluene	10	10	U																		
Diethylphthalate	10	1	J																		
4-Chlorophenyl-phenylether	10	10	U																		
Fluorene	10	10	U																		
4-Nitroaniline	50	25	U																		
4,6-Dinitro-2-methylphenol	50	25	U																		
N-Nitrosodiphenylamine	10	10	U																		
4-Bromophenyl-phenylether	10	10	U																		
Hexachlorobenzene	10	10	U																		
Pentachlorophenol	50	25	U																		
Phenanthrene	10	10	U																		
Anthracene	10	10	U																		
Carbazole	10	10	U																		
Di-n-butylphthalate	10	10	U																		
Fluoranthene	10	10	U																		
Pyrene	10	10	U																		
Butylbenzylphthalate	10	10	U																		
3,3'-Dichlorobenzidine	10	10	U																		
Benzo(a)anthracene	10	10	U																		
Chrysene	10	10	U																		
bis(2-Ethylhexyl)phthalate	10	10	U																		
Di-n-octylphthalate	10	10	U																		
Benzo(b)fluoranthene	10	10	U																		
Benzo(k)fluoranthene	10	10	U																		
Benzo(a)pyrene	10	10	U																		
Indeno(1,2,3-cd)pyrene	10	10	U																		
Dibenzo(a,h)anthracene	10	10	U																		
Benzo(g,h,i)perylene	10	10	U																		

BLANK AND SAMPLE DATA SUMMARY

SDG: B08YB5	REVIEWER: PS			DATE: 10/21/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SBLK	Di-n-Butylphthalate	0.6	J		ug/L	3.0	6.0	B08YB5	U
SBLK	bis(2-Ethylhexyl) phthalate	0.3	J		ug/L	1.5	3.0	B08YB5	U

DATA QUALIFICATION SUMMARY

SDG: B08YB5	REVIEWER: PS	DATE: 10/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Di-n-Butylphthalate	U	B08YB5	Lab Blank Contamination
bis(2-Ethylhexyl)phthalate	U	B08YB5	Lab Blank Contamination

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WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	PESTICIDES/PCBs
199-F1-2	B08Y11	W	07/28/93	NV	4-5
199-F5-1	B08Y16	W	07/23/93	NV	4-6
199-F5-3	B08Y21	W	07/30/93	NV	4-7
199-F5-4	B08Y26	W	07/21/93	NV	4-8
199-F5-6	B08Y31	W	07/21/93	NV	4-8
199-F5-42	B08Y36	W	07/20/93	NV	4-9
199-F5-43A	B08Y41	W	07/18/93	V	4-10
199-F5-44	B08Y46	W	07/20/93	NV	4-9
199-F5-45	B08Y51	W	07/17/93	V	4-10
199-F5-46	B08Y56	W	07/18/93	V	4-10
199-F5-47	B08Y61	W	07/18/93	V	4-10
199-F5-48	B08Y66	W	07/17/93	V	4-10
199-F6-1	B08Y71	W	07/21/93	NV	4-8
199-F7-1	B08Y76 B08YB1 B08YC0	W W W	07/19/93 07/19/93 07/19/93	V V V	4-13 4-16 4-13
199-F7-2	B08Y81	W	07/28/93	NV	4-5
199-F7-3	B08Y86	W	07/28/93	NV	4-5
199-F8-2	B08Y91 B08YB5 B08YC5	W W W	07/24/93 07/24/93 07/24/93	V V V	4-14 4-19 4-14
199-F8-3	B08Y96	W	07/22/93	NV	4-15
199-F8-4	B08YF1	W	07/22/93	NV	4-15
EB-1	B08YD0	W	07/23/93	V	4-14
EB-2	B08YD5	W	07/23/93	V	4-14

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4.0 PESTICIDE AND PCB DATA VALIDATION

4.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation:

B08Y41 B08Y76 B08Y91 B08YB1 B08YB5

All packages were found to be complete with the exception of B08YB1. The laboratory failed to a complete Pesticide Evaluation Standards Summary, Form VIII. Subsequently, the reviewer could not evaluate the %RSD values for aldrin and DBC to be certain that they were less than the 10% upper limit. Therefore, as per Westinghouse-Hanford, no action was taken on the basis of a %RSD summary.

4.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the holding time requirements for pesticide/PCB analyses were met by the laboratory. Westinghouse-Hanford procedures require that samples be extracted within seven days of collection and analyzed within 40 days of extraction (WHC 1992a).

Holding time requirements were met for all samples.

4.3 INSTRUMENT PERFORMANCE AND CALIBRATIONS

Instrument performance was assessed to ensure that adequate chromatographic resolution and instrument sensitivity were achieved by the gas chromatographic system.

The specific criteria for acceptable instrument performance are outlined in EPA guidelines (EPA 1988b and 1991), including the evaluation and qualification procedures that may be performed on the analytical results.

Instrument calibration is performed to ensure that the chromatographic system is capable of producing acceptable and reliable analytical data. The initial and continuing calibrations are to be performed according to procedures established by CLP protocols. An initial calibration is performed prior to sample analysis to establish the linear range of the system, including a demonstration that all target compounds can be detected. Continuing calibration checks are

performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

During the quality assurance review, all indicators for acceptable instrument performance were verified. The criteria established by CLP protocols were met and the results are acceptable.

4.3.1 Initial Calibrations

The laboratory performed an initial multipoint calibration for all target compounds at the concentrations required by CLP protocols. The linearity of the initial calibration is established when the percent RSD or the calibration factors are less than or equal to 10 percent (or 15% for certain analytes).

Due to initial calibration results outside of QC limits, the following sample was qualified as an estimate and flagged "J" for endrin aldehyde:

- Sample number B08Y51 in SDG No. B08Y41.

All other initial calibration results were acceptable.

4.3.2 Calibration Verification

The criteria for acceptable continuing calibrations requires that the calibration factors for all target compounds have a percent difference of less than or equal to 15 percent of the average calibration factor calculated for the associated initial calibration standard. The 15 percent difference value is required for results calculated using the chromatographic column which is used for quantitative purposes. In addition, the percent difference of the calibration factors calculated for the chromatographic column that is used for confirmation must be less than or equal to 20 percent.

Continuing calibration results grossly exceeded QC limits for chlordane compounds. Alpha-chlordane and gamma-chlordane were rejected and flagged "R" for sample number B08YB1 in SDG No. B08YB1.

All other calibration verification results were acceptable.

4.4 BLANKS

Method blank and field blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in the associated blanks should be qualified as non-detects.

There were no compounds of concern detected in the method or field blanks.

4.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of the surrogate compounds and the matrix spike recoveries calculated for the sample analyses.

4.5.1 Matrix Spike Recovery

Matrix spike analyses are performed in duplicate using six compounds specified by CLP protocols. The recoveries for the six compounds must be within the acceptable quality control limits established by CLP protocols.

All matrix spike/matrix spike duplicate results were acceptable.

4.5.2 Surrogate Recovery

Surrogate compound recoveries are calculated using analytical results from two stable surrogate compounds added to the sample prior to sample preparation and analysis. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When recoveries for either surrogate compound are out of the control window, all positively identified target compound concentrations in samples associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J" and undetected compounds are qualified estimated below the detection limit and flagged "UJ".

Sample number B08YB5 in SDG No. B08YB5 exhibited low surrogate recoveries on one column for surrogate compound tetrachloro-m-xylene. All associated results were qualified as estimates and flagged "J".

Surrogate recovery results were acceptable for all other samples.

4.6 PRECISION

Precision is expressed by the RPD between the recoveries of the matrix spike and the matrix spike duplicate analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed by using unspiked duplicate analyses.

All matrix spike/matrix spike duplicate RPDs were acceptable.

4.7 COMPOUND IDENTIFICATION AND QUANTITATION

The data were evaluated to confirm the positive concentrations and to investigate the possibility of false negatives in all other data. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., detection limits, instrument linearity, analytical recovery). These factors were found to be in control, and the data are acceptable.

Compound quantitations and reported detection limits were recalculated and verified for a minimum of 20 percent of the samples in each case to ensure that they were accurate and are consistent with CLP requirements (EPA 1991). The reported detection limits must be in accordance with the CRQLs specified in the applicable CLP statement of work.

All validated compound identifications, CRQLs, and quantitation results were acceptable.

4.8 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, or sensitivity) were found during the quality assurance review.

In general, the pesticide/PCB data presented in this report met the protocol-specified QA/QC requirements. All chlordane results in one sample were rejected due to extremely low continuing calibration results. Rejected data are unusable for all purposes. The initial calibration result for one sample did not meet QC limits for endrin aldehyde. The associated sample result was qualified as an estimate and flagged "J". Due to low surrogate recovery results, all compounds associated with one sample were qualified as estimates and flagged "J". Estimated data are usable for limited purposes only. All other validated data are considered valid and usable within the standard associated with the method.

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y11																		
Sample Number		B08Y11		B08Y81		B08Y86													
Location		199-F1-2		199-F7-2		199-F7-3													
Remarks		NV		NV		NV													
Sample Date		07/28/93		07/28/93		07/28/93													
Extraction Date		08/02/93		08/02/93		08/02/93													
Analysis Date		08/14/93		08/14/93		08/14/93													
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U	0.050	U	0.050	U														
beta-BHC	0.05	0.050	U	0.050	U	0.050	U														
delta-BHC	0.05	0.050	U	0.050	U	0.050	U														
gamma-BHC (Lindane)	0.05	0.050	U	0.050	U	0.050	U														
Heptachlor	0.05	0.050	U	0.050	U	0.050	U														
Aldrin	0.05	0.050	U	0.050	U	0.050	U														
Heptachlor epoxide	0.05	0.050	U	0.050	U	0.050	U														
Endosulfan I	0.05	0.050	U	0.050	U	0.050	U														
Dieldrin	0.10	0.10	U	0.10	U	0.10	U														
4,4'-DDE	0.10	0.10	U	0.10	U	0.10	U														
Endrin	0.10	0.10	U	0.10	U	0.10	U														
Endosulfan II	0.10	0.10	U	0.10	U	0.10	U														
4,4'-DDD	0.10	0.10	U	0.10	U	0.10	U														
Endosulfan sulfate	0.10	0.10	U	0.10	U	0.10	U														
4,4'-DDT	0.10	0.10	U	0.10	U	0.10	U														
Methoxychlor	0.50	0.50	U	0.50	U	0.50	U														
Endrin Ketone	0.10	0.10	U	0.10	U	0.10	U														
Endrin Aldehyde	0.10	0.10	U	0.10	U	0.10	U														
alpha-Chlordane	0.05	0.050	U	0.050	U	0.050	U														
gamma-Chlordane	0.05	0.050	U	0.050	U	0.050	U														
Toxaphene	5.00	5.0	U	5.0	U	5.0	U														
Aroclor-1016	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1221	1.00	2.0	U	2.0	U	2.0	U														
Aroclor-1232	2.00	1.0	U	1.0	U	1.0	U														
Aroclor-1242	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1248	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1254	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1260	1.00	1.0	U	1.0	U	1.0	U														

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y16																				
Sample Number		B08Y16																			
Location		199-F5-1																			
Remarks		NV																			
Sample Date		07/23/93																			
Extraction Date		07/30/93																			
Analysis Date		08/14/93																			
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U																		
beta-BHC	0.05	0.050	U																		
delta-BHC	0.05	0.050	U																		
gamma-BHC (Lindane)	0.05	0.050	U																		
Heptachlor	0.05	0.050	U																		
Aldrin	0.05	0.050	U																		
Heptachlor epoxide	0.05	0.050	U																		
Endosulfan I	0.05	0.050	U																		
Dieldrin	0.10	0.10	U																		
4,4'-DDE	0.10	0.10	U																		
Endrin	0.10	0.10	U																		
Endosulfan II	0.10	0.10	U																		
4,4'-DDD	0.10	0.10	U																		
Endosulfan sulfate	0.10	0.10	U																		
4,4'-DDT	0.10	0.10	U																		
Methoxychlor	0.50	0.50	U																		
Endrin Ketone	0.10	0.10	U																		
Endrin Aldehyde	0.10	0.10	U																		
alpha-Chlordane	0.05	0.050	U																		
gamma-Chlordane	0.05	0.050	U																		
Toxaphene	5.00	5.0	U																		
Aroclor-1016	1.00	1.0	U																		
Aroclor-1221	1.00	2.0	U																		
Aroclor-1232	2.00	1.0	U																		
Aroclor-1242	1.00	1.0	U																		
Aroclor-1248	1.00	1.0	U																		
Aroclor-1254	1.00	1.0	U																		
Aroclor-1260	1.00	1.0	U																		

NV Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y21																				
Sample Number		B08Y21																			
Location		199-F5-3																			
Remarks		NV																			
Sample Date		07/30/93																			
Extraction Date		08/04/93																			
Analysis Date		09/08/93																			
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U																		
beta-BHC	0.05	0.050	U																		
delta-BHC	0.05	0.050	U																		
gamma-BHC (Lindane)	0.05	0.050	U																		
Heptachlor	0.05	0.95																			
Aldrin	0.05	0.050	U																		
Heptachlor epoxide	0.05	0.050	U																		
Endosulfan I	0.05	0.050	U																		
Dieldrin	0.10	0.10	U																		
4,4'-DDE	0.10	0.10	U																		
Endrin	0.10	0.10	U																		
Endosulfan II	0.10	0.10	U																		
4,4'-DDD	0.10	0.10	U																		
Endosulfan sulfate	0.10	0.10	U																		
4,4'-DDT	0.10	0.10	U																		
Methoxychlor	0.50	0.50	U																		
Endrin Ketone	0.10	0.10	U																		
Endrin Aldehyde	0.10	0.10	U																		
alpha-Chlordane	0.05	0.050	U																		
gamma-Chlordane	0.05	0.050	U																		
Toxaphene	5.00	5.0	U																		
Aroclor-1016	1.00	1.0	U																		
Aroclor-1221	1.00	2.0	U																		
Aroclor-1232	2.00	1.0	U																		
Aroclor-1242	1.00	1.0	U																		
Aroclor-1248	1.00	1.0	U																		
Aroclor-1254	1.00	1.0	U																		
Aroclor-1260	1.00	1.0	U																		

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y26																				
Sample Number		B08Y26		B08Y31		B08Y71															
Location		199-F5-4		199-F5-6		199-F6-1															
Remarks		NV		NV		NV															
Sample Date		07/21/93		07/21/93		07/21/93															
Extraction Date		07/27/93		07/27/93		07/27/93															
Analysis Date		08/11/93		08/11/93		08/11/93															
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U	0.050	U	0.050	U														
beta-BHC	0.05	0.050	U	0.050	U	0.050	U														
delta-BHC	0.05	0.050	U	0.050	U	0.050	U														
gamma-BHC (Lindane)	0.05	0.050	U	0.050	U	0.050	U														
Heptachlor	0.05	0.050	U	0.050	U	0.050	U														
Aldrin	0.05	0.050	U	0.050	U	0.050	U														
Heptachlor epoxide	0.05	0.050	U	0.050	U	0.050	U														
Endosulfan I	0.05	0.050	U	0.050	U	0.050	U														
Dieldrin	0.10	0.10	U	0.10	U	0.10	U														
4,4'-DDE	0.10	0.10	U	0.10	U	0.10	U														
Endrin	0.10	0.10	U	0.10	U	0.10	U														
Endosulfan II	0.10	0.10	U	0.10	U	0.10	U														
4,4'-DDD	0.10	0.10	U	0.10	U	0.10	U														
Endosulfan sulfate	0.10	0.10	U	0.10	U	0.10	U														
4,4'-DDT	0.10	0.10	U	0.10	U	0.10	U														
Methoxychlor	0.50	0.50	U	0.50	U	0.50	U														
Endrin Ketone	0.10	0.10	U	0.10	U	0.10	U														
Endrin Aldehyde	0.10	0.10	U	0.10	U	0.10	U														
alpha-Chlordane	0.05	0.050	U	0.050	U	0.050	U														
gamma-Chlordane	0.05	0.050	U	0.050	U	0.050	U														
Toxaphene	5.00	5.0	U	5.0	U	5.0	U														
Aroclor-1016	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1221	1.00	2.0	U	2.0	U	2.0	U														
Aroclor-1232	2.00	1.0	U	1.0	U	1.0	U														
Aroclor-1242	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1248	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1254	1.00	1.0	U	1.0	U	1.0	U														
Aroclor-1260	1.00	1.0	U	1.0	U	1.0	U														

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y36																				
Sample Number		B08Y36		B08Y46																	
Location		199-F5-42		199-F5-44																	
Remarks		NV		NV																	
Sample Date		07/20/93		07/20/93																	
Extraction Date		07/23/93		07/23/93																	
Analysis Date		08/11/93		08/11/93																	
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U	0.050	U																
beta-BHC	0.05	0.050	U	0.050	U																
delta-BHC	0.05	0.050	U	0.050	U																
gamma-BHC (Lindane)	0.05	0.050	U	0.050	U																
Heptachlor	0.05	0.050	U	0.050	U																
Aldrin	0.05	0.050	U	0.050	U																
Heptachlor epoxide	0.05	0.050	U	0.050	U																
Endosulfan I	0.05	0.050	U	0.050	U																
Dieldrin	0.10	0.10	U	0.10	U																
4,4'-DDE	0.10	0.10	U	0.10	U																
Endrin	0.10	0.10	U	0.10	U																
Endosulfan II	0.10	0.10	U	0.10	U																
4,4'-DDD	0.10	0.10	U	0.10	U																
Endosulfan sulfate	0.10	0.10	U	0.10	U																
4,4'-DDT	0.10	0.10	U	0.10	U																
Methoxychlor	0.50	0.50	U	0.50	U																
Endrin Ketone	0.10	0.10	U	0.10	U																
Endrin Aldehyde	0.10	0.10	U	0.10	U																
alpha-Chlordane	0.05	0.050	U	0.050	U																
gamma-Chlordane	0.05	0.050	U	0.050	U																
Toxaphene	5.00	5.0	U	5.0	U																
Aroclor-1016	1.00	1.0	U	1.0	U																
Aroclor-1221	1.00	2.0	U	2.0	U																
Aroclor-1232	2.00	1.0	U	1.0	U																
Aroclor-1242	1.00	1.0	U	1.0	U																
Aroclor-1248	1.00	1.0	U	1.0	U																
Aroclor-1254	1.00	1.0	U	1.0	U																
Aroclor-1260	1.00	1.0	U	1.0	U																

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y41																				
Sample Number		B08Y41		B08Y51		B08Y56		B08Y61		B08Y66											
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48											
Remarks																					
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93											
Extraction Date		07/22/93		07/22/93		07/22/93		07/22/93		07/22/93											
Analysis Date		08/11/93		08/11/93		08/11/93		08/11/93		08/11/93											
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
beta-BHC	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
delta-BHC	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
gamma-BHC (Lindane)	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
Heptachlor	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
Aldrin	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
Heptachlor epoxide	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
Endosulfan I	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
Dieldrin	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
4,4'-DDE	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
Endrin	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
Endosulfan II	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
4,4'-DDD	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
Endosulfan sulfate	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
4,4'-DDT	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
Methoxychlor	0.50	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U										
Endrin Ketone	0.10	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
Endrin Aldehyde	0.10	0.10	U	0.078	J	0.10	U	0.10	U	0.10	U										
alpha-Chlordane	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
gamma-Chlordane	0.05	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U										
Toxaphene	5.00	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U										
Aroclor-1016	1.00	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1221	1.00	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U										
Aroclor-1232	2.00	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1242	1.00	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1248	1.00	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1254	1.00	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1260	1.00	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U										

CALIBRATION DATA SUMMARY

SDG: B08Y41	REVIEWER: KG		DATE: 10/18/93		PAGE 1 OF 1
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING		INSTRUMENT:		
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
8/10/93	Endrin Aldehyde		16.9	B08Y51	J

DATA QUALIFICATION SUMMARY

SDG: B08Y41	REVIEWER: KG	DATE: 10/18/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Endrin Aldehyde	J	B08Y51	Initial Calibration

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y76																				
Sample Number		B08Y76		B08YC0																	
Location		199-F7-1		199-F7-1																	
Remarks				DUP																	
Sample Date		07/19/93		07/19/93																	
Extraction Date		07/23/93		07/23/93																	
Analysis Date		08/11/93		08/11/93																	
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U	0.050	U																
beta-BHC	0.05	0.050	U	0.050	U																
delta-BHC	0.05	0.050	U	0.050	U																
gamma-BHC (Lindane)	0.05	0.050	U	0.050	U																
Heptachlor	0.05	0.050	U	0.050	U																
Aldrin	0.05	0.050	U	0.050	U																
Heptachlor epoxide	0.05	0.050	U	0.050	U																
Endosulfan I	0.05	0.050	U	0.050	U																
Dieldrin	0.10	0.10	U	0.10	U																
4,4'-DDE	0.10	0.10	U	0.10	U																
Endrin	0.10	0.10	U	0.10	U																
Endosulfan II	0.10	0.10	U	0.10	U																
4,4'-DDD	0.10	0.10	U	0.10	U																
Endosulfan sulfate	0.10	0.10	U	0.10	U																
4,4'-DDT	0.10	0.10	U	0.10	U																
Methoxychlor	0.50	0.50	U	0.50	U																
Endrin Ketone	0.10	0.10	U	0.10	U																
Endrin Aldehyde	0.10	0.10	U	0.10	U																
alpha-Chlordane	0.05	0.050	U	0.050	U																
gamma-Chlordane	0.05	0.050	U	0.050	U																
Toxaphene	5.00	5.0	U	5.0	U																
Aroclor-1016	1.00	1.0	U	1.0	U																
Aroclor-1221	1.00	2.0	U	2.0	U																
Aroclor-1232	2.00	1.0	U	1.0	U																
Aroclor-1242	1.00	1.0	U	1.0	U																
Aroclor-1248	1.00	1.0	U	1.0	U																
Aroclor-1254	1.00	1.0	U	1.0	U																
Aroclor-1260	1.00	1.0	U	1.0	U																

DUP = Duplicate

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y91																		
Sample Number		B08Y91		B08YC5		B08YD0		B08YD5											
Location		199-F8-2		199-F8-2		EB-1		EB-2											
Remarks				DUP		EB		EB											
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93											
Extraction Date		07/28/93		07/28/93		07/28/93		07/28/93											
Analysis Date		08/11/93		08/11/93		08/11/93		08/11/93											
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
beta-BHC	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
delta-BHC	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
gamma-BHC (Lindane)	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
Heptachlor	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
Aldrin	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
Heptachlor epoxide	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
Endosulfan I	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
Dieldrin	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
4,4'-DDE	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
Endrin	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
Endosulfan II	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
4,4'-DDD	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
Endosulfan sulfate	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
4,4'-DDT	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
Methoxychlor	0.50	0.50	U	0.50	U	0.50	U	0.50	U										
Endrin Ketone	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
Endrin Aldehyde	0.10	0.10	U	0.10	U	0.10	U	0.10	U										
alpha-Chlordane	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
gamma-Chlordane	0.05	0.050	U	0.050	U	0.050	U	0.050	U										
Toxaphene	5.00	5.0	U	5.0	U	5.0	U	5.0	U										
Aroclor-1016	1.00	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1221	1.00	2.0	U	2.0	U	2.0	U	2.0	U										
Aroclor-1232	2.00	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1242	1.00	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1248	1.00	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1254	1.00	1.0	U	1.0	U	1.0	U	1.0	U										
Aroclor-1260	1.00	1.0	U	1.0	U	1.0	U	1.0	U										

DUP = Duplicate, EB = Equipment Blank

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y96																				
Sample Number		B08Y96		B08YF1																	
Location		199-F8-3		199-F8-4																	
Remarks		NV		NV																	
Sample Date		07/22/93		07/22/93																	
Extraction Date		07/28/93		07/28/93																	
Analysis Date		08/11/93		08/11/93																	
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U	0.050	U																
beta-BHC	0.05	0.050	U	0.050	U																
delta-BHC	0.05	0.050	U	0.050	U																
gamma-BHC (Lindane)	0.05	0.050	U	0.050	U																
Heptachlor	0.05	0.050	U	0.050	U																
Aldrin	0.05	0.050	U	0.050	U																
Heptachlor epoxide	0.05	0.050	U	0.050	U																
Endosulfan I	0.05	0.050	U	0.050	U																
Dieldrin	0.10	0.10	U	0.10	U																
4,4'-DDE	0.10	0.10	U	0.10	U																
Endrin	0.10	0.10	U	0.10	U																
Endosulfan II	0.10	0.10	U	0.10	U																
4,4'-DDD	0.10	0.10	U	0.10	U																
Endosulfan sulfate	0.10	0.10	U	0.10	U																
4,4'-DDT	0.10	0.10	U	0.10	U																
Methoxychlor	0.50	0.50	U	0.50	U																
Endrin Ketone	0.10	0.10	U	0.10	U																
Endrin Aldehyde	0.10	0.10	U	0.10	U																
alpha-Chlordane	0.05	0.050	U	0.050	U																
gamma-Chlordane	0.05	0.050	U	0.050	U																
Toxaphene	5.00	5.0	U	5.0	U																
Aroclor-1016	1.00	1.0	U	1.0	U																
Aroclor-1221	1.00	2.0	U	2.0	U																
Aroclor-1232	2.00	1.0	U	1.0	U																
Aroclor-1242	1.00	1.0	U	1.0	U																
Aroclor-1248	1.00	1.0	U	1.0	U																
Aroclor-1254	1.00	1.0	U	1.0	U																
Aroclor-1260	1.00	1.0	U	1.0	U																

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB1																				
Sample Number		B08YB1																			
Location		199-F7-1																			
Remarks		Split																			
Sample Date		07/19/93																			
Extraction Date		07/22/93																			
Analysis Date		08/05/93																			
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.048	U																		
beta-BHC	0.05	0.048	U																		
delta-BHC	0.05	0.048	U																		
gamma-BHC (Lindane)	0.05	0.048	U																		
Heptachlor	0.05	0.048	U																		
Aldrin	0.05	0.048	U																		
Heptachlor epoxide	0.05	0.048	U																		
Endosulfan I	0.05	0.048	U																		
Dieldrin	0.10	0.095	U																		
4,4'-DDE	0.10	0.095	U																		
Endrin	0.10	0.095	U																		
Endosulfan II	0.10	0.095	U																		
4,4'-DDD	0.10	0.095	U																		
Endosulfan sulfate	0.10	0.095	U																		
4,4'-DDT	0.10	0.095	U																		
Methoxychlor	0.50	0.48	U																		
Endrin Ketone	0.10	0.095	U																		
alpha-Chlordane	0.05	0.48	R																		
gamma-Chlordane	0.05	0.48	R																		
Toxaphene	5.00	0.95	U																		
Aroclor-1016	1.00	0.48	U																		
Aroclor-1221	1.00	0.48	U																		
Aroclor-1232	2.00	0.48	U																		
Aroclor-1242	1.00	0.48	U																		
Aroclor-1248	1.00	0.48	U																		
Aroclor-1254	1.00	0.95	U																		
Aroclor-1260	1.00	0.95	U																		

CALIBRATION DATA SUMMARY

SDG: B08YB1	REVIEWER: KG	DATE: 10/18/93	PAGE 1 OF 1		
COMMENTS:					
CALIB. TYPE: INITIAL CONTINUING		INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
8/04/93	All Chlordane Results		0.8	B08YB1	R

DATA QUALIFICATION SUMMARY

SDG: B08YB1	REVIEWER: KG	DATE: 10/18/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
alpha-Chlordane	R	B08YB1	Continuing Calibration
gamma-Chlordane	R	B08YB1	Continuing Calibration

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB5																				
Sample Number		B08YB5																			
Location		199-F8-2																			
Remarks		Split																			
Sample Date		07/24/93																			
Extraction Date		07/28/93																			
Analysis Date		08/04/93																			
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.048	UJ																		
beta-BHC	0.05	0.048	UJ																		
delta-BHC	0.05	0.048	UJ																		
gamma-BHC (Lindane)	0.05	0.048	UJ																		
Heptachlor	0.05	0.048	UJ																		
Aldrin	0.05	0.048	UJ																		
Heptachlor epoxide	0.05	0.048	UJ																		
Endosulfan I	0.05	0.048	UJ																		
Dieldrin	0.10	0.096	UJ																		
4,4'-DDE	0.10	0.096	UJ																		
Endrin	0.10	0.096	UJ																		
Endosulfan II	0.10	0.096	UJ																		
4,4'-DDD	0.10	0.096	UJ																		
Endosulfan sulfate	0.10	0.096	UJ																		
4,4'-DDT	0.10	0.096	UJ																		
Methoxychlor	0.50	0.048	UJ																		
Endrin Ketone	0.10	0.096	UJ																		
Endrin Aldehyde	0.10	0.096	UJ																		
alpha-Chlordane	0.05	0.048	UJ																		
gamma-Chlordane	0.05	0.048	UJ																		
Toxaphene	5.00	4.8	UJ																		
Aroclor-1016	1.00	0.96	UJ																		
Aroclor-1221	1.00	1.9	UJ																		
Aroclor-1232	2.00	0.96	UJ																		
Aroclor-1242	1.00	0.96	UJ																		
Aroclor-1248	1.00	0.96	UJ																		
Aroclor-1254	1.00	0.96	UJ																		
Aroclor-1260	1.00	0.96	UJ																		

ACCURACY DATA SUMMARY

SDG: B08YB5	REVIEWER: KG	DATE: 10/22/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08YB5	Tetrachloro-m-xylene	45%	B08YB5	J
PBLKLE1286-MBI	Tetrachloro-m-xylene	50%	B08YB5	J
PBLKLE1286-MBI	Decachlorobiphenyl	45%	B08YB5	J
PBLKLE1286-MBI	Decachlorobiphenyl	40%	B08YB5	J

DATA QUALIFICATION SUMMARY

SDG: B08YB5	REVIEWER: KG	DATE: 10/22/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All Pest/PCB compounds	J	B08YB5	Low Surrogate Recovery

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WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	INORGANICS
199-F1-2	B08Y11 B08Y12	W W	07/28/93 07/28/93	NV NV	5-12 5-13
199-F5-1	B08Y16 B08Y17	W W	07/23/93 07/23/93	NV NV	5-14 5-15
199-F5-3	B08Y21 B08Y22	W W	07/30/93 07/30/93	NV NV	5-16 5-17
199-F5-4	B08Y26 B08Y27	W W	07/21/93 07/21/93	NV NV	5-18 5-19
199-F5-6	B08Y31 B08Y32	W W	07/21/93 07/21/93	NV NV	5-18 5-19
199-F5-42	B08Y36 B08Y37	W W	07/20/93 07/20/93	NV NV	5-20 5-21
199-F5-43A	B08Y41 B08Y42	W W	07/18/93 07/18/93	V V	5-22 5-26
199-F5-44	B08Y46 B08Y47	W W	07/20/93 07/20/93	NV NV	5-20 5-21
199-F5-45	B08Y51 B08Y52	W W	07/17/93 07/17/93	V V	5-22 5-26
199-F5-46	B08Y56 B08Y57	W W	07/18/93 07/18/93	V V	5-22 5-26
199-F5-47	B08Y61 B08Y62	W W	07/18/93 07/18/93	V V	5-22 5-26
199-F5-48	B08Y66 B08Y67	W W	07/17/93 07/17/93	V V	5-22 5-26
199-F6-1	B08Y71 B08Y72	W W	07/21/93 07/21/93	NV NV	5-18 5-19
199-F7-1	B08Y76 B08Y77 B08YB1 B08YB2 B08YC0 B08YC1	W W W W W W	07/19/93 07/19/93 07/19/93 07/19/93 07/19/93 07/19/93	V V V V V V	5-30 5-35 5-48 5-48 5-30 5-35
199-F7-2	B08Y81 B08Y82	W W	07/28/93 07/28/93	NV NV	5-12 5-13

WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	INORGANICS
199-F7-3	B08Y86	W	07/28/93	NV	5-12
	B08Y87	W	07/28/93	NV	5-13
199-F8-2	B08Y91	W	07/24/93	V	5-39
	B08Y92	W	07/24/93	V	5-42
	B08YB5	W	07/24/93	V	5-52
	B08YB6	W	07/24/93	V	5-52
	B08YC5	W	07/24/93	V	5-39
	B08YC6	W	07/24/93	V	5-42
199-F8-3	B08Y96	W	07/22/93	NV	5-46
	B08Y97	W	07/22/93	NV	5-47
199-F8-4	B08YF1	W	07/22/93	NV	5-46
	B08YF2	W	07/22/93	NV	5-47
EB-1	B08YD0	W	07/23/93	V	5-39
	B08YD1	W	07/23/93	V	5-42
EB-2	B08YD5	W	07/23/93	V	5-39
	B08YD6	W	07/23/93	V	5-42

5.0 INORGANIC DATA VALIDATION

5.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and checked for completeness:

B08Y41	B08Y76	B08Y91	B08YB1
B08Y42	B08Y77	B08Y92	B08YB5

5.2 HOLDING TIMES

Analytical holding times for ICP metals, GFAA metals and CVAA mercury analyses were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: samples must be analyzed within 28 days for mercury, 14 days for cyanide and within six months for all other metals.

All holding time requirements for all analytes in all data packages reviewed were met.

5.3 INSTRUMENT PERFORMANCE AND CALIBRATIONS

Performance of specific instrument quality assurance and quality control procedures, including deficiencies noted during the quality assurance review, are outlined below.

Three calibration standards and a blank were analyzed for arsenic, lead, selenium and thallium by GFAA. The correlation coefficient of a least squares linear regression met the requirements for calibration in all cases.

Up to five calibration standards and a blank were analyzed for mercury by CVAA. The correlation coefficient of a least squares linear regression met the requirements for calibration.

At least one standard and a blank were analyzed by ICP for all other elements.

The above calibrations were each immediately verified with an ICV standard and a calibration blank. The ICV was prepared from a source independent of the calibration standards, at a mid-calibration range concentration. The ICV percent recovery must fall within the control limits of 90 to 110 percent for metals analyzed by ICP and GFAA, and 80 to 120 percent for mercury. Calibration linearity near the detection limit was

verified with a standard prepared at a concentration near the CRDL.

The ICVs met the recommended control limits in all cases.

The calibrations were subsequently verified at regular intervals using a CCV standard. The control windows for percent recovery of CCV standards are the same as the ICV windows described above.

The CCVs met the recommended control limits in all cases.

A midpoint standard distillation was not performed for the cyanide analysis and the associated result was, therefore, qualified as an estimate and flagged "J" for the following sample:

- Sample number B08YB1 in SDG No. B08YB1.

All other midpoint standard distillation for the cyanide analysis were performed.

5.3.1 ICP Calibration

An ICS was analyzed at the beginning and end of each ICP sample run to verify the laboratory interelement and background correction factors. Results for the ICS solution must fall within the control limit of ±20 percent of the true value. Arsenic, lead, selenium and thallium were analyzed using a Thermo-Jarrell Ash ICP61E. Under USEPA CLP protocol, this is acceptable provided the ICP is able to meet the required detection limits and the analytical run follows the USEPA CLP protocol for ICP analysis. Under the ICP method, an ICS is required for lead at a concentration of 1.0 mg/L. Refer to Table 2, page E-14, of the USEPA CLP ILM01.0.

The ICS has been analyzed at the proper frequency and all ICSAB solution percent recovery values fell within the control limit with the following exception. An ICS was not analyzed for lead and the associated results were, therefore, rejected and flagged "R" for the following samples:

- Sample numbers B08Y91, B08YC5, B08YD0 and B08YD5 in SDG No. B08Y91.

- Sample numbers B08Y92, B08YC6, B08YD1 and B08YD6 in SDG No. B08Y92.

A five-fold serial dilution is required for all elements analyzed by ICP. The subsequent concentrations of the reanalysis are compared with the original analysis. If the analyte concentration is sufficiently high (a minimum factor of 50 above the IDL) then the serial dilution must agree within 10% of the original determination after correction for dilution.

5.3.2 Atomic Absorption Calibrations

Duplicate injections are required for all GFAA analyses. The duplicate injections establish the precision of the individual analytical determinations. For sample concentrations greater than the CRDL, duplicate injections must agree within ±20 percent RSD or CV. The AA calibration results are discussed further in Section 5.7 of this report.

5.4 BLANKS

5.4.1 Positive Blank Results

In the case of positive blank results, samples with digestate concentrations (in ug/L) of less than five times (<5x) the highest amount found in any of the associated blanks have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times (>5x) the highest amount found in any of the associated blanks do not require qualification.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for aluminum:

- Sample numbers B08Y41 and B08Y56 in SDG No. B08Y41.
- Sample number B08YD5 in SDG No. B08Y91.
- Sample number B08YB2 in SDG No. B08YB1.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for calcium:

- Sample numbers B08YD1 and B08YD6 in SDG No. B08Y92.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for cobalt:

- Sample number B08Y56 in SDG No. B08Y41.
- Sample number B08Y62 in SDG No. B08Y42.
- Sample number B08Y77 in SDG No. B08Y77.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for copper:

- Sample number B08Y42 in SDG No. B08Y42.
- Sample number B08Y91 in SDG No. B08Y91.
- Sample number B08Y92 in SDG No. B08Y92.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for iron:

- Sample numbers B08Y41, B08Y51, B08Y56 and B08Y61 in SDG No. B08Y41.
- Sample numbers B08Y42, B08Y52, B08Y62 and B08Y67 in SDG No. B08Y42.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.
- Sample number B08Y77 in SDG No. B08Y77.
- Sample numbers B08Y91, B08YD0 and B08YD5 in SDG No. B08Y91.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for manganese:

- Sample numbers B08Y41, B08Y51, B08Y56 and B08Y61 in SDG No. B08Y41.
- Sample numbers B08Y52 and B08Y62 in SDG No. B08Y42.
- Sample numbers B08Y91, B08YC5 and B08YD5 in SDG No. B08Y91.
- Sample numbers B08Y92, B08YC6, B08YD1 and B08YD6 in SDG No. B08Y92.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for selenium:

- Sample numbers B08Y91, B08YC5, B08YD0 and B08YD5 in SDG No. B08Y91.
- Sample numbers B08Y92, B08YC6 and B08YD1 in SDG No. B08Y92.
- Sample numbers B08YB1 and B08YB2 in SDG No. B08YB1.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for sodium:

- Sample numbers B08YD0 and B08YD5 in SDG No. B08Y91.
- Sample numbers B08YD1 and B08YD6 in SDG No. B08Y92.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for vanadium:

- Sample numbers B08YB5 and B08YB6 in SDG No. B08YB5.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for zinc:

- Sample number B08Y51 in SDG No. B08Y41.

- Sample number B08Y91 in SDG No. B08Y91.
- Sample number B08YC6 in SDG No. B08Y92.
- Sample number B08YB1 in SDG No. B08YB1.

All other laboratory blank results were acceptable.

5.4.2 Negative Blank Results

In the case of negative blank results, if the absolute value of any calibration blank exceeds the Instrument Detection Limit (IDL), all non-detects are qualified as estimates and flagged "J", and all positive results within two times the absolute value of the blank result are qualified as estimates and flagged "J". In the case of preparation blanks, if the absolute value exceeds the Contract Required Detection Limit (CRDL), all non-detects are rejected and flagged "R" and all detected that are less than ten times the absolute value of the preparation blank result are qualified as estimates and flagged "J".

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for calcium:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.
- Sample numbers B08YD0 and B08YD5 in SDG No. B08Y91.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for chromium:

- Sample numbers B08Y41, B08Y51 and B08Y61 in SDG No. B08Y41.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.
- Sample numbers B08Y77 and B08YC1 in SDG No. B08Y77.
- Sample numbers B08Y92, B08YC6, B08YD1 and B08YD6 in SDG No. B08Y92.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for copper:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for iron:

- Sample numbers B08Y92, B08YC6, B08YD1 and B08YD6 in SDG No. B08Y92.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for sodium:

- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.

Due to the presence of negative laboratory contamination, the following samples were flagged "J" for zinc:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.
- Sample numbers B08Y42, B08Y52, B08Y57, B08Y62 and B08Y67 in SDG No. B08Y42.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.

5.5 ACCURACY

5.5.1 Matrix Spike Recovery

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must generally fall within the range of 75 to 125 percent. Samples with a spike recovery of less than 30% and a sample value below the IDL were rejected and flagged "R". All other samples with a spike recovery outside the QC limits are qualified as estimates and flagged "J".

The matrix spike recovery fell outside the QC limits and the associated results flagged "J" for lead in the following samples:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.

The matrix spike recovery fell outside the QC limits and the associated results flagged "J" for thallium in the following samples:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.
- Sample numbers B08Y42, B08Y52, B08Y57, B08Y62 and B08Y67 in SDG No. B08Y42.
- Sample numbers B08Y77 and B08YC1 in SDG No. B08Y77.

The matrix spike recovery fell below the 30% QC recovery limit and the associated results flagged "R" for selenium in the following samples:

- Sample numbers B08YB1 and B08YB2 in SDG No. B08YB1.

The matrix spike recovery fell below the 30% QC recovery limit and the associated results flagged "R" for thallium in the following samples:

- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.

All other matrix spike recovery results were acceptable.

5.5.2 Laboratory Control Sample Recovery

The LCS monitors the overall performance of the analysis, including the sample preparation. An LCS should be digested or distilled and analyzed with every group of samples which have been prepared together. The performance criteria for solid LCS samples are established through interlaboratory studies coordinated by a certifying agency (e.g., EPA or an independent commercial supplier).

One liquid LCS was digested and analyzed for each of the cases in this report that contained water samples. The results were compared against the control limit of 80-120% as required by the EPA CLP SOW 3/90 protocol and found to be acceptable.

All LCSW results were found to be acceptable.

5.6 PRECISION

5.6.1 Laboratory Duplicate Samples

The laboratory duplicate results measures the precision of the method by measuring a second aliquot of the sample that is treated the same way as the original. Samples whose precision fell outside the quality control requirements were flagged as estimates "J".

All laboratory duplicate recovery results were acceptable.

5.6.2 ICP Serial Dilution

The ICP serial dilution is used to determine whether significant physical or chemical interferences exist due to sample matrix. If sample concentration is $\geq$50 times the IDL for an analyte and the %D is outside the control limits the associated data must be qualified as estimates "J".

All ICP serial dilution results were acceptable.

5.6.3 Total and Dissolved Sample Analysis

Inorganics parameters included the analysis of the total as well as dissolved samples. Total samples include particulate and dissolved fractions while dissolved samples are first filtered prior to preparation. The purpose of the analysis is to determine what metals are inherent in the particulate matter found in the aqueous sample.

Since Westinghouse Validation Guidelines do not address this issue, the total and dissolved samples are presented in the report, but no judgement on the data was made.

Below is a table of the total and dissolved samples which were validated.

Total	Dissolved
B08Y41	B08Y42
B08Y51	B08Y52
B08Y56	B08Y57
B08Y61	B08Y62
B08Y66	B08Y67
B08Y76	B08Y77
B08Y91	B08Y92
B08YB1	B08YB2
B08YB5	B08YB6
B08YC0	B08YC1
B08YC5	B08YC6
B08YD0	B08YD1
B08YD5	B08YD6

The lead results for dissolved sample B08Y57 exceeded the lead results for total sample B08Y56 with a percent difference greater than 50.0. However, no qualification of the samples was made as per Westinghouse-Hanford data validation guidelines.

5.7 FURNACE AA QUALITY CONTROL

The post-digestion analytical spike is analyzed to determine the extent of interference in the digestate matrix. When the results of the analytical spike analyses exceeds the control window of 85 to 115 percent recovery and the absorbance of the sample is greater than fifty percent of the analytical spike absorbance, then the sample must be reanalyzed using the MSA. The duplicate injections and the analytical spike recoveries establish the precision and accuracy of the individual GFAA determinations.

5.7.1 Duplicate Injections

Each furnace analysis requires a minimum of two injections (burns), except for full Method of Standard Addition (MSA). For

concentrations greater than CRDL, the duplicate injection readings must agree within 20% relative standard deviation (RSD) or coefficient of variation (CV). If these requirements are not met, the analytical sample must be rerun once (i.e., two additional burns). If the readings are then still outside the QC limits, the result is qualified as an estimate and flagged "J".

All duplicate injection quality control requirements were met.

5.7.2 Analytical Spike Recoveries

For all samples whose analytical spike results are outside the 85 to 115 percent control limit, but whose absorbances are less than 50 percent of the analytical spike absorbance, the samples were flagged as estimates "J". In cases where the analytical spike recovery was 0.0 percent, the results were rejected and flagged "R".

The analytical spike recovery fell outside the established QC limits and the associated results flagged "J" for arsenic in the following samples:

- Sample numbers B08Y42, B08Y52, B08Y57 and B08Y62 in SDG No. B08Y42.

The analytical spike recovery fell outside the established QC limits and the associated results flagged "J" for lead in the following samples:

- Sample numbers B08Y56 and B08Y61 in SDG No. B08Y41.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.
- Sample numbers B08YB1 and B08YB2 in SDG No. B08YB1.
- Sample numbers B08YB5 and B08YB6 in SDG No. B08YB5.

The analytical spike recovery fell outside the established QC limits and the associated results flagged "J" for selenium in the following samples:

- All samples in SDG No. B08Y41.
- Sample numbers B08Y52, B08Y57 and B08Y62 in SDG No. B08Y42.
- Sample number B08Y76 in SDG No. B08Y76.
- Sample number B08Y77 in SDG No. B08Y77.

The analytical spike recovery fell outside the established QC limits and the associated results flagged "J" for thallium in the following samples:

- All samples in SDG No. B08Y41.
- Sample numbers B08Y52 and B08Y67 in SDG No. B08Y42.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.
- Sample numbers B08Y77 and B08YC1 in SDG No. B08Y77.

An analytical spike was not performed during the GFAA analysis of arsenic, selenium and thallium for sample numbers B08YB1 and B08YB2 in SDG No. B08YB1. Westinghouse-Hanford protocol requires that we follow the USEPA CLP SOW 788 or 390 protocol, as a result both samples have been qualified as estimates and flagged "J".

All other analytical spike recovery results were acceptable.

5.7.3 Method of Standard Addition (MSA) Results

For all samples whose analytical spike results are outside the 85 to 115 percent control limit and whose absorbances are greater than 50 percent of the analytical spike absorbance an MSA is required. In cases where the MSA correlation coefficient was less than 0.995 the MSA analysis was repeated once. If the correlation coefficient was still less than 0.995, samples were flagged as estimates "J".

All MSA results were acceptable.

5.8 ANALYTE QUANTITATION AND DETECTION LIMITS

Twenty percent of sample results and reported detection limits were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors.

The reviewer verified that the results and detection limits fell within the linear range of the instrument.

5.9 OVERALL ASSESSMENT AND SUMMARY

All samples were analyzed and reported under the 1990 CLP protocol (EPA 1990). Several inconsistencies and deviations from the protocol were observed. They are as follows:

A CCV and CCB must be analyzed immediately after the ICV and ICB. ICAP and Mercury do not follow this protocol. For ICAP analysis a CCV and CCB were run after the initial interference checks and CRI. This is incorrect because the ICSA/AB and CRII are considered analytical samples and according to the CLP protocol a CCV and CCB must be run prior to any analytical samples. For mercury, the CCV and CCB were analyzed for after

the first ten samples. Refer to Sections E-11 paragraph 5b and E-15 paragraph 4a of the EPA CLP SOW 3/90 protocol.

Internal Chains of Custody lacked sufficient information such as interdepartmental transfers, i.e., from the sample custodian to the technician responsible for sample preparation and the dates these transfers took place plus the EPA sample ID number. Without this information Internal Chains of Custody can not be verified as those belonging to samples in this report. Refer to Sections F-5, paragraph 1.5 and F-3, paragraph 1.4 of the EPA CLP SOW 3/90 protocol.

For samples analyzed by Roy F. Weston, incorrect ICP instrument detection limits (IDL's) are being used to report results down to the IDL. Two sets of IDL's (Form 10) are included in the data package for ICAP analysis, one for instrument IC1 and one for instrument IC3. According to the case narrative addendum, Roy F. Weston states that the highest IDL of the two instruments is used as per Exhibit E, Section V, Item 10 (pg. E-53) of the EPA Statement of Work for Inorganics Analysis, Document Number ILM01.0. This is correct only when two instruments are being used to determine sample results within a data package. However, in this data package Roy F. Weston used only one ICP instrument to determine the sample results and therefore it is that instrument's IDL's which should be used to calculate results. According to Form XIV information IC1 is the instrument being used for analysis while the IDL's of IC3 are the ones reported on Forms 1-9. This can effect results flagged "U" or results which may be flagged "U" because of laboratory blank contamination.

All raw data associated with Roy F. Weston have not been labeled with the client (EPA) ID number. Results labeled with only the laboratory sample ID number is insufficient. Refer to Section B-10 of the EPA CLP SOW 390.

Except as noted in the preceding sections, all other validated data are usable for all purposes.

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y11																		
Sample Number		B08Y11		B08Y81		B08Y86													
Location		199-F1-2		199-F7-2		199-F7-3													
Remarks		NV		NV		NV													
Sample Date		07/28/93		07/28/93		07/28/93													
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U	22.8	U	25.8													
Antimony	60	17.9	U	17.9	U	17.9	U												
Arsenic	10	11.7		9.5		5.3													
Barium	200	30.8		25.6		47.5													
Beryllium	5	0.40	U	0.40	U	0.40	U												
Cadmium	5	1.5	U	1.5	U	1.5	U												
Calcium	5000	37000		59400		70500													
Chromium	10	8.0		19.3		9.2													
Cobalt	50	1.5	U	1.5	U	1.5	U												
Copper	25	2.4		2.2	U	2.2	U												
Iron	100	16.4		36.6		18.0													
Lead	3	1.1	U	1.1	U	1.1	U												
Magnesium	5000	11700		17800		21500													
Manganese	15	1.1		1.2		46.5													
Mercury	0.2	0.20	U	0.20	U	0.20	U												
Nickel	40	7.8		6.8		6.5													
Potassium	5000	4100		6100		7590													
Selenium	5	4.0		3.6		4.0													
Silver	10	3.4	U	3.4	U	3.4	U												
Sodium	5000	48400		51800		72800													
Thallium	10	3.1		2.0		2.5													
Vanadium	50	19.4		14.4		9.7													
Zinc	20	8.4		8.0		7.7													
Cyanide	10	10.0	U	10.0	U	10.0	U												

NV = Not Validated

INORGANIC ANALYSIS, WATER MATRIX, (μg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y12																				
Sample Number		B08Y12		B08Y82		B08Y87															
Location		199-F1-2		199-F7-2		199-F7-3															
Remarks		NV, FIL		NV, FIL		NV, FIL															
Sample Date		07/28/93		07/28/93		07/28/93															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U	24.4		22.8	U														
Antimony	60	17.9	U	17.9	U	17.9	U														
Arsenic	10	8.1		4.8		2.9															
Barium	200	29.9		34.6		47.6															
Beryllium	5	0.40	U	0.40	U	0.40	U														
Cadmium	5	1.5	U	1.5	U	1.5	U														
Calcium	5000	36400		59500		71600															
Chromium	10	4.6		6.4		5.2															
Cobalt	50	1.5	U	1.5	U	1.5	U														
Copper	25	2.2	U	2.2	U	2.2	U														
Iron	100	5.0	U	5.0	U	5.0	U														
Lead	3	1.1	U	5.1		1.1	U														
Magnesium	5000	11500		17900		21800															
Manganese	15	1.1		1.1		46.4															
Mercury	0.2	0.20	U	0.20	U	0.20	U														
Nickel	40	4.6		3.7	U	3.7	U														
Potassium	5000	4060		6290		7810															
Selenium	5	2.3	U	2.3	U	2.6															
Silver	10	3.4	U	3.4	U	3.4	U														
Sodium	5000	47500		52000		74800															
Thallium	10	1.1	U	1.4		1.1															
Vanadium	50	20.8		13.8		8.2															
Zinc	20	6.8		6.8		4.2															
Cyanide	10	N/A		N/A		N/A															

NV = Not Validated, FIL = Filtered, N/A = Not Applicable

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y16																				
Sample Number		B08Y16																			
Location		199-F5-1																			
Remarks		NV																			
Sample Date		07/23/93																			
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U																		
Antimony	60	17.9	U																		
Arsenic	10	2.8	U																		
Barium	200	25.0																			
Beryllium	5	0.40	U																		
Cadmium	5	1.5	U																		
Calcium	5000	31700																			
Chromium	10	4.1																			
Cobalt	50	1.5	U																		
Copper	25	7.5																			
Iron	100	132																			
Lead	3	1.4	U																		
Magnesium	5000	5100																			
Manganese	15	1.7																			
Mercury	0.2	0.10	U																		
Nickel	40	3.7	U																		
Potassium	5000	1990																			
Selenium	5	2.4	U																		
Silver	10	3.4	U																		
Sodium	5000	3100																			
Thallium	10	3.0	U																		
Vanadium	50	2.3	U																		
Zinc	20	4.4																			
Cyanide	10	10.0	U																		

"V" = Not Validated

INORGANIC ANALYSIS, WATER MATRIX, (μg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y17																		
Sample Number		B08Y17																	
Location		199-F5-1																	
Remarks		FIL., NV																	
Sample Date		07/23/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	20.9	U																
Antimony	60	15.7	U																
Arsenic	10	2.7	U																
Barium	200	23.2																	
Beryllium	5	1.2	U																
Cadmium	5	1.5	U																
Calcium	5000	32100																	
Chromium	10	5.1	U																
Cobalt	50	2.5	U																
Copper	25	5.0																	
Iron	100	24.4																	
Lead	3	1.9	U																
Magnesium	5000	5250																	
Manganese	15	1.6	U																
Mercury	0.2	0.10	U																
Nickel	40	4.7	U																
Potassium	5000	2130																	
Selenium	5	3.7	U																
Silver	10	5.0	U																
Sodium	5000	3220																	
Thallium	10	2.0	U																
Vanadium	50	3.0																	
Zinc	20	3.7	U																
Cyanide	10	N/A																	

NV = Not Validated, FIL = Filtered, N/A = Not Applicable

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y21																				
Sample Number		B08Y21																			
Location		199-F5-3																			
Remarks		NV																			
Sample Date		07/30/93																			
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.5																			
Antimony	60	15.7	U																		
Arsenic	10	1.7	U																		
Barium	200	14.8																			
Beryllium	5	1.2	U																		
Cadmium	5	1.5	U																		
Calcium	5000	48500																			
Chromium	10	5.1	U																		
Cobalt	50	2.5	U																		
Copper	25	4.0	U																		
Iron	100	6590																			
Lead	3	2.4																			
Magnesium	5000	13700																			
Manganese	15	63.6																			
Mercury	0.2	0.20	U																		
Nickel	40	5.5																			
Potassium	5000	3830																			
Selenium	5	2.3	U																		
Silver	10	5.0	U																		
Sodium	5000	6220																			
Thallium	10	1.1	U																		
Vanadium	50	2.6	U																		
Zinc	20	38.1																			
Cyanide	10	10.0	U																		

"V" = Not Validated

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y22																		
Sample Number		B08Y22																	
Location		199-F5-3																	
Remarks		NV, FIL																	
Sample Date		07/30/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	20.9	U																
Antimony	60	15.7	U																
Arsenic	10	1.7	U																
Barium	200	22.9																	
Beryllium	5	1.2	U																
Cadmium	5	1.5	U																
Calcium	5000	45800																	
Chromium	10	5.1	U																
Cobalt	50	2.5	U																
Copper	25	4.0	U																
Iron	100	15.5	U																
Lead	3	1.1	U																
Magnesium	5000	13000																	
Manganese	15	49.3																	
Mercury	0.2	0.20	U																
Nickel	40	4.7	U																
Potassium	5000	3570																	
Selenium	5	2.3	U																
Silver	10	5.0	U																
Sodium	5000	5850																	
Thallium	10	1.1	U																
Vanadium	50	2.6	U																
Zinc	20	3.7	U																
Cyanide	10	N/A																	

NV = Not Validated, FIL = Filtered, N/A = Not Applicable

INORGANIC ANALYSIS, WATER MATRIX, (μg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y26																		
Sample Number		B08Y26		B08Y31		B08Y71													
Location		199-F5-4		199-F5-6		199-F6-1													
Remarks		NV		NV		NV													
Sample Date		07/21/93		07/21/93		07/21/93													
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U	22.8	U	22.8	U														
Antimony	60	17.9	U	17.9	U	17.9	U														
Arsenic	10	1.7	U	1.7	U	1.7	U														
Barium	200	51.4		24.2		27.2															
Beryllium	5	0.40	U	0.40	U	0.40	U														
Cadmium	5	1.5	U	1.5	U	1.5	U														
Calcium	5000	102000		44400		28300															
Chromium	10	19.5		26.8		9.9															
Cobalt	50	1.5	U	1.5	U	1.5	U														
Copper	25	6.7		4.3		2.2	U														
Iron	100	37.0		348		44.6															
Lead	3	2.6		2.2		1.3															
Magnesium	5000	23900		7270		3710															
Manganese	15	0.60	U	9.3		2.3															
Mercury	0.2	0.10	U	0.10	U	0.10	U														
Nickel	40	3.7	U	3.7	U	19.8															
Potassium	5000	6390		2360		2430															
Selenium	5	5.0		3.8		2.3	U														
Silver	10	3.4	U	3.4	U	3.4	U														
Sodium	5000	26800		6570		3310															
Thallium	10	1.2		1.6		1.1	U														
Vanadium	50	6.7		2.6		2.6															
Zinc	20	4.1	U	4.1	U	4.1	U														
Cyanide	10	10.0	U	10.0	U	10.0	U														

"V = Not Validated

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y27																				
Sample Number		B08Y27		B08Y32		B08Y72															
Location		199-F5-4		199-F5-6		199-F6-1															
Remarks		NV, FIL		NV, FIL		NV, FIL															
Sample Date		07/21/93		07/21/93		07/21/93															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	30.9		22.0		20.9	U														
Antimony	60	15.7	U	15.7	U	15.7	U														
Arsenic	10	1.7	U	1.7	U	1.7	U														
Barium	200	57.5		27.9		36.6															
Beryllium	5	1.2	U	1.2	U	1.2	U														
Cadmium	5	1.5	U	1.5	U	1.5	U														
Calcium	5000	101000		44100		27800															
Chromium	10	17.4		17.4		5.1	U														
Cobalt	50	2.5	U	2.5	U	2.5	U														
Copper	25	4.0	U	4.0	U	4.0	U														
Iron	100	15.5	U	38.7		15.5	U														
Lead	3	1.1	U	1.1	U	1.1	U														
Magnesium	5000	23900		7320		3690															
Manganese	15	1.6	U	8.7		1.6	U														
Mercury	0.2	0.10	U	0.10	U	0.10	U														
Nickel	40	4.7	U	4.7	U	4.7	U														
Potassium	5000	6660		2490		2500															
Selenium	5	2.3	U	2.3	U	2.3	U														
Silver	10	5.0	U	5.0	U	5.0	U														
Sodium	5000	27600		6920		3320															
Thallium	10	1.1	U	1.1	U	1.1	U														
Vanadium	50	4.8		3.6		4.2															
Zinc	20	3.7	U	3.7	U	3.7	U														
Cyanide	10	N/A		N/A		N/A															

NV = Not Validated, FIL = Filtered, N/A = Not Applicable

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y36																		
Sample Number		B08Y36		B08Y46															
Location		199-F5-42		199-F5-44															
Remarks		NV		NV															
Sample Date		07/20/93		07/20/93															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	40.6		33.5															
Antimony	60	17.9	U	17.9	U														
Arsenic	10	2.7	U	2.7	U														
Barium	200	33.0		19.8															
Beryllium	5	0.40	U	0.40	U														
Cadmium	5	1.5	U	1.5	U														
Calcium	5000	30100		29800															
Chromium	10	4.9		17.7															
Cobalt	50	1.5	U	1.5	U														
Copper	25	3.9		3.2															
Iron	100	53.7		75.1															
Lead	3	1.9	U	1.9	U														
Magnesium	5000	5490		5300															
Manganese	15	2.7		2.6															
Mercury	0.2	0.10	U	0.10	U														
Nickel	40	3.7	U	3.7	U														
Potassium	5000	1650		1450															
Selenium	5	3.7	U	3.7	U														
Silver	10	3.4	U	3.4	U														
Sodium	5000	2730		3840															
Thallium	10	2.0	U	2.0	U														
Vanadium	50	2.3	U	2.3	U														
Zinc	20	5.4		5.4															
Cyanide	10	10.0	U	10.0	U														

"V = Not Validated

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y37																				
Sample Number		B08Y37		B08Y47																	
Location		199-F5-42		199-F5-44																	
Remarks		NV, FIL		NV, FIL																	
Sample Date		07/20/93		07/20/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	20.9	U	31.7																	
Antimony	60	15.7	U	15.7	U																
Arsenic	10	2.8	U	2.8	U																
Barium	200	31.0		21.9																	
Beryllium	5	1.2	U	1.2	U																
Cadmium	5	1.5	U	1.5	U																
Calcium	5000	30600		29900																	
Chromium	10	5.1	U	5.2																	
Cobalt	50	2.5	U	2.5	U																
Copper	25	4.0	U	4.0	U																
Iron	100	15.5	U	15.5	U																
Lead	3	1.4	U	1.4	U																
Magnesium	5000	5630		5390																	
Manganese	15	1.6	U	1.6	U																
Mercury	0.2	0.10	U	0.10	U																
Nickel	40	4.7	U	4.7	U																
Potassium	5000	1650		1460																	
Selenium	5	2.4	U	2.4	U																
Silver	10	5.0	U	5.0	U																
Sodium	5000	2850		4000																	
Thallium	10	3.0	U	3.0	U																
Vanadium	50	2.6	U	2.6	U																
Zinc	20	3.7	U	3.7	U																
Cyanide	10	N/A		N/A																	

NV = Not Validated, FIL = Filtered, N/A = Not Applicable

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y41																				
Sample Number		B08Y41		B08Y51		B08Y56		B08Y61		B08Y66											
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48											
Remarks																					
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93											
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	56.0	U	22.8	U	27.4	U	22.8	U	282											
Antimony	60	17.9	U	17.9	U	17.9	U	17.9	U	17.9	U										
Arsenic	10	2.8	U	3.4		2.8	U	2.8	U	2.8	U										
Barium	200	23.3		25.4		44.6		57.0		43.3											
Beryllium	5	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U										
Cadmium	5	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U										
Calcium	5000	25700	J	41300	J	86800	J	106000	J	92700	J										
Chromium	10	3.8	J	7.3	J	206		14.7	J	44.1											
Cobalt	50	1.5	U	1.5	U	1.8	U	1.5	U	1.5	U										
Copper	25	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ										
Iron	100	99.6	U	67.9	U	43.2	U	52.4	U	610											
Lead	3	1.7	J	1.4	UJ	2.0	J	2.1	J	3.8	J										
Magnesium	5000	4600		9480		12000		24000		21600											
Manganese	15	3.7	U	3.1	U	1.1	U	5.0	U	11.2											
Mercury	0.2	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
Nickel	40	3.7	U	6.9		3.7	U	17.2		14.7											
Potassium	5000	1370		4330		4750		6270		6660											
Selenium	5	2.4	UJ	2.4	UJ	2.4	UJ	12.0	UJ	2.4	UJ										
Silver	10	3.4	U	3.4	U	3.4	U	3.4	U	3.4	U										
Sodium	5000	2380		15600		19000		35200		23300											
Thallium	10	3.0	UJ	3.0	UJ	3.0	UJ	15.0	UJ	3.0	UJ										
Vanadium	50	2.3	U	8.8		4.8		4.1		4.9											
Zinc	20	4.1	UJ	16.4	UJ	4.1	UJ	4.1	UJ	4.1	UJ										
Cyanide	10	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U										

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y41	REVIEWER: KG			DATE: 10/19/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Aluminum	25.7			ug/L	128		B08Y41, B08Y56	U
PBW	Calcium	-45.3			ug/L		453	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	J
PBW	Chromium	-2.09			ug/L		20.9	B08Y41, B08Y51, B08Y61	J
PBW	Cobalt	1.89			ug/L	9.45		B08Y56	U
PBW	Copper	-4.86			ug/L		48.6	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	J
PBW	Iron	25.5			ug/L	128		B08Y41, B08Y51, B08Y56, B08Y61	U
CCB	Manganese	1.1			ug/L	5.5		B08Y41, B08Y51, B08Y56, B08Y61	U
CCB	Zinc	5.5			ug/L	27.5		B08Y51	U
PBW	Zinc	-5.47			ug/L		54.7	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	J

ACCURACY DATA SUMMARY

SDG: B08Y41	REVIEWER: KG	DATE: 10/19/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08Y66S	Lead	73.5	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	J
B08Y66S	Thallium	32.9	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	J
B08Y56A	Lead	76.9	B08Y56	J
B08Y61A	Lead	81.8	B08Y61	J
B08Y41A	Selenium	79.2	B08Y41	J
B08Y51A	Selenium	52.5	B08Y51	J
B08Y56A	Selenium	63.0	B08Y56	J
B08Y61A	Selenium	76.0	B08Y61	J
B08Y66A	Selenium	76.2	B08Y66	J
B08Y41A	Thallium	68.4	B08Y41	J
B08Y51A	Thallium	54.2	B08Y51	J
B08Y56A	Thallium	48.8	B08Y56	J
B08Y61A	Thallium	55.5	B08Y61	J
B08Y66A	Thallium	50.1	B08Y66	J

DATA QUALIFICATION SUMMARY

SDG: B08Y41	REVIEWER: KG	DATE: 10/19/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B08Y41, B08Y56	Lab Blank Contamination
Calcium	J	All	Negative Lab Blank Results
Chromium	J	B08Y41, B08Y51, B08Y61	Negative Lab Blank Results
Cobalt	U	B08Y56	Lab Blank Contamination
Copper	J	All	Negative Lab Blank Results
Iron	U	B08Y41, B08Y51, B08Y56, B08Y61	Lab Blank Contamination
Manganese	U	B08Y41, B08Y51, B08Y56, B08Y61	Lab Blank Contamination
Zinc	U	B08Y51	Lab Blank Contamination
Zinc	J	All	Negative Lab Blank Results
Lead	J	All	Matrix Spike
Thallium	J	All	Matrix Spike
Lead	J	B08Y56, B08Y61	GFAA Analytical Spike
Selenium	J	All	GFAA Analytical Spike
Thallium	J	All	GFAA Analytical Spike

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y42																				
Sample Number		B08Y42		B08Y52		B08Y57		B08Y62		B08Y67											
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48											
Remarks		FIL		FIL		FIL		FIL		FIL											
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93											
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U	22.8	U	22.8	U	22.8	U	22.8	U										
Antimony	60	17.9	U	17.9	U	17.9	U	17.9	U	17.9	U										
Arsenic	10	2.8	UJ	3.0	J	2.8	UJ	2.8	UJ	2.8	U										
Barium	200	22.2		26.0		42.8		53.8		42.3											
Beryllium	5	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U										
Cadmium	5	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U										
Calcium	5000	25000		43600		86400		99700		94300											
Chromium	10	4.0		2.3		197		14.2		20.5											
Cobalt	50	1.5	U	1.5	U	1.5	U	1.8	U	1.5	U										
Copper	25	3.2	U	2.2	U	2.2	U	2.2	U	2.2	U										
Iron	100	8.1	U	9.4	U	5.0	U	14.3	U	7.1	U										
Lead	3	2.5		1.9	U	5.0		1.9	U	1.9	U										
Magnesium	5000	4510		9990		12000		22600		22100											
Manganese	15	0.60	U	1.2	U	0.60	U	3.3	U	0.60	U										
Mercury	0.2	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U										
Nickel	40	3.7	U	3.7	U	3.7	U	10.3		3.7	U										
Potassium	5000	1310		4500		4680		5790		6660											
Selenium	5	2.4	U	2.4	UJ	2.4	UJ	2.4	UJ	12.0	U										
Silver	10	3.4	U	3.4	U	3.4	U	3.4	U	3.4	U										
Sodium	5000	2260		16300		18900		32400		23500											
Thallium	10	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ										
Vanadium	50	2.3	U	10.6		3.6		2.3	U	4.2											
Zinc	20	4.1	UJ	4.1	UJ	4.1	UJ	4.1	UJ	4.1	UJ										
Cyanide	10	N/A		N/A		N/A		N/A		N/A											

"FIL" = Filtered, N/A = Not Applicable

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y42	REVIEWER: KG			DATE: 10/19/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Cobalt	2.5			ug/L	12.5		B08Y62	U
ICB	Copper	23.4			ug/L	117		B08Y42	U
PBW	Iron	62.6			ug/L	313		B08Y42, B08Y52, B08Y62, B08Y67	U
CCB	Manganese	1.60			ug/L	8.0		B08Y52, B08Y62	U
PBW	Zinc	-4.11			ug/L		41.1	B08Y42, B08Y52, B08Y57, B08Y62, B08Y67	J

ACCURACY DATA SUMMARY

SDG: B08Y42	REVIEWER: KG	DATE: 10/19/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08Y67S	Thallium	65.0	B08Y42, B08Y52, B08Y57, B08Y62, B08Y67	J
B08Y42A	Arsenic	70.6	B08Y42	J
B08Y52A	Arsenic	53.2	B08Y52	J
B08Y57A	Arsenic	59.1	B08Y57	J
B08Y62A	Arsenic	54.9	B08Y62	J
B08Y52A	Selenium	54.5	B08Y52	J
B08Y57A	Selenium	43.2	B08Y57	J
B08Y62A	Selenium	62.0	B08Y62	J
B08Y52A	Thallium	75.9	B08Y52	J
B08Y67A	Thallium	77.7	B08Y67	J

DATA QUALIFICATION SUMMARY

SDG: B08Y42	REVIEWER: KG	DATE: 10/19/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Cobalt	U	B08Y62	Lab Blank Contamination
Copper	U	B08Y42	Lab Blank Contamination
Iron	U	B08Y42, B08Y52, B08Y62, B08Y67	Lab Blank Contamination
Manganese	U	B08Y52, B08Y62	Lab Blank Contamination
Zinc	J	All	Negative Lab Blank Results
Thallium	J	All	Matrix Spike
Arsenic	J	B08Y42, B08Y52, B08Y57, B08Y62	GFAA Analytical Spike
Selenium	J	B08Y52, B08Y57, B08Y62	GFAA Analytical Spike
Thallium	J	B08Y52, B08Y67	GFAA Analytical Spike

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y76																				
Sample Number		B08Y76		B08YC0																	
Location		199-F7-1		199-F7-1																	
Remarks				DUP																	
Sample Date		07/19/93		07/19/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	20.9	U	20.9	U																
Antimony	60	15.7	U	15.7	U																
Arsenic	10	6.9		7.3																	
Barium	200	40.2		35.4																	
Beryllium	5	1.2	U	1.20	U																
Cadmium	5	1.5	U	1.5	U																
Calcium	5000	59100		58600																	
Chromium	10	5.2	J	5.1	UJ																
Cobalt	50	2.5	U	2.5	U																
Copper	25	4.0	UJ	4.0	UJ																
Iron	100	67.6	U	72.2	U																
Lead	3	1.8	J	2.6	J																
Magnesium	5000	18700		18500																	
Manganese	15	1.6	U	1.6	U																
Mercury	0.2	0.10	U	0.10	U																
Nickel	40	4.7	U	4.7	U																
Potassium	5000	7010		6890																	
Selenium	5	17.5	UJ	3.5	U																
Silver	10	5.0	U	5.0	U																
Sodium	5000	54600	J	54100	J																
Thallium	10	15.0	R	15.0	R																
Vanadium	50	16.4		15.9																	
Zinc	20	19.8	J	4.6	J																
Cyanide	10	10.0	U	10.0	U																

IP = Duplicate

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y76	REVIEWER: KG			DATE: 10/20/93				PAGE 1 OF 2	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PBW	Iron	17.67			ug/L	88.35		B08Y76, B08YC0	U
PBW	Copper	-4.74			ug/L		47.4	B08Y76, B08YC0	J
PBW	Zinc	-5.13			ug/L		51.3	B08Y76, B08YC0	J
PBW	Sodium	-56.62			ug/L		566.2	B08Y76, B08YC0	J

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y76	REVIEWER: KG			DATE: 10/20/93				PAGE 2 OF 2	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	2X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ICB	Chromium	-6.0			ug/L	12.0		B08Y76, B08YC0	J

ACCURACY DATA SUMMARY

SDG: B08Y76	REVIEWER: KG	DATE: 10/20/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08YC0S	Thallium	29.8	B08Y76, B08YC0	R
B08Y76A	Lead	82.5	B08Y76	J
B08YC0A	Lead	84.1	B08YC0	J
B08Y76A	Selenium	74.7	B08Y76	J
B08Y76A	Thallium	58.9	B08Y76	J
B08YC0A	Thallium	55.5	B08YC0	J

DATA QUALIFICATION SUMMARY

SDG: B08Y76	REVIEWER: KG	DATE: 10/20/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Iron	U	B08Y76, B08YC0	Lab Blank Contamination
Copper	J	B08Y76, B08YC0	Negative Blank Results (PBW)
Zinc	J	B08Y76, B08YC0	Negative Blank Results (PBW)
Sodium	J	B08Y76, B08YC0	Negative Blank Results (PBW)
Chromium	J	B08Y76, B08YC0	Negative Blank Results (ICB)
Thallium	R	B08Y76, B08YC0	Matrix Spike
Lead	J	B08Y76, B08YC0	GFAA Analytical Spike
Selenium	J	B08Y76	GFAA Analytical Spike
Thallium	J	B08Y76, B08YC0	GFAA Analytical Spike

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y77																				
Sample Number		B08Y77		B08YC1																	
Location		199-F7-1		199-F7-1																	
Remarks		FIL		DUP, FIL																	
Sample Date		07/19/93		07/19/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U	22.8	U																
Antimony	60	17.9	U	17.9	U																
Arsenic	10	7.3		7.9																	
Barium	200	43.8		44.4																	
Beryllium	5	0.40	U	0.40	U																
Cadmium	5	1.5	U	1.5	U																
Calcium	5000	60700		60900																	
Chromium	10	2.8	J	2.8	J																
Cobalt	50	3.0	U	1.5	U																
Copper	25	2.2	U	2.2	U																
Iron	100	23.2	U	5.0	U																
Lead	3	1.9	U	2.5																	
Magnesium	5000	18800		18800																	
Manganese	15	0.60	U	0.60	U																
Mercury	0.2	0.10	U	0.10	U																
Nickel	40	3.7	U	3.7	U																
Potassium	5000	7190		7250																	
Selenium	5	6.8	J	3.5	U																
Silver	10	3.4	U	3.4	U																
Sodium	5000	55100		55300																	
Thallium	10	2.0	UJ	2.0	UJ																
Vanadium	50	15.2		15.6																	
Zinc	20	4.1	U	4.1	U																
Cyanide	10	N/A		N/A																	

DUP = Duplicate, FIL = Filtered, N/A = Not Applicable

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y77	REVIEWER: KG			DATE: 10/21/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Cobalt	1.5			ug/L	7.5		B08Y77	U
PBW	Iron	33.45			ug/L	167.25		B08Y77	U
PBW	Chromium	-2.44			ug/L		24.4	B08Y77, B08YC1	J

ACCURACY DATA SUMMARY

SDG: B08Y77	REVIEWER: KG	DATE: 10/21/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08YC1S	Thallium	64.2	B08Y77, B08YC1	J
B08Y77A	Selenium	51.0	B08Y77	J
B08Y77A	Thallium	76.8	B08Y77	J
B08YC1A	Thallium	77.7	B08YC1	J

DATA QUALIFICATION SUMMARY

SDG: B08Y77	REVIEWER: KG	DATE: 10/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Cobalt	U	B08Y77	Lab Blank Contamination
Iron	U	B08Y77	Lab Blank Contamination
Chromium	J	B08Y77, B08YC1	Negative Lab Blank Results
Thallium	J	B08Y77, B08YC1	Matrix Spike
Selenium	J	B08Y77	GFAA Analytical Spike
Thallium	J	B08Y77, B08YC1	GFAA Analytical Spike

INORGANIC ANALYSIS, WATER MATRIX, (μg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y91																		
Sample Number		B08Y91		B08YC5		B08YD0		B08YD5											
Location		199-F8-2		199-F8-2		EB-1		EB-2											
Remarks				DUP		EB		EB											
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93											
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U	22.8	U	22.8	U	26.1	U										
Antimony	60	17.9	U	17.9	U	17.9	U	17.9	U										
Arsenic	10	4.8		3.4		1.7	U	1.7	U										
Barium	200	48.0		44.8		1.0	U	1.0	U										
Beryllium	5	0.40	U	0.40	U	0.40	U	0.40	U										
Cadmium	5	1.5	U	1.5	U	1.5	U	1.5	U										
Calcium	5000	100000		99500		43.2	J	35.7	UJ										
Chromium	10	9.0		8.7		1.8	U	1.8	U										
Cobalt	50	1.5	U	1.5	U	1.5	U	1.5	U										
Copper	25	3.2	U	2.2	U	2.2	U	2.2	U										
Iron	100	38.0	U	49.2		11.4	U	30.3	U										
Lead	3	2.8	R	2.6	R	3.5	R	2.1	R										
Magnesium	5000	26000		25800		34.9		91.8											
Manganese	15	1.6	U	1.3	U	0.60	U	0.73	U										
Mercury	0.2	0.10	U	0.10	U	0.10	U	0.10	U										
Nickel	40	3.7	U	3.7	U	3.7	U	3.7	U										
Potassium	5000	8230		8130		85.5	U	85.5	U										
Selenium	5	5.0		4.0		2.9		2.5											
Silver	10	3.4	U	3.4	U	3.4	U	3.4	U										
Sodium	5000	33300		32900		143	U	85.5	U										
Thallium	10	1.1	U	1.1	U	1.1	U	1.1	U										
Vanadium	50	5.8		5.5		2.3	U	2.3	U										
Zinc	20	4.2	U	4.1	U	4.1	U	4.1	U										
Cyanide	10	10.0	U	10.0	U	10.0	U	10.0	U										

DUP = Duplicate, EB = Equipment Blank

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y91	REVIEWER: KG			DATE: 10/21/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Aluminum	25.5			ug/L	128		B08YD5	U
CCB	Copper	9.3			ug/L	46.5		B08Y91	U
CCB	Iron	9.2			ug/L	46.0		B08Y91, B08YD0, B08YD5	
CCB	Manganese	1.3			ug/L	6.5		B08Y91, B08YC5, B08YD5	U
CCB	Selenium	2.3			ug/L	11.5		B08Y91, B08YC5, B08YD0, B08YD5	U
PBW	Sodium	118.81			ug/L	594		B08YD0, B08YD5	U
CCB	Zinc	5.3			ug/L	26.5		B08Y91	U
PBW	Calcium	-69.83			ug/L		698	B08YD0, B08YD5	J

DATA QUALIFICATION SUMMARY

SDG: B08Y91	REVIEWER: KG	DATE: 10/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B08YD5	Lab Blank Contamination
Copper	U	B08Y91	Lab Blank Contamination
Iron	U	B08Y91, B08YD0, B08YD5	Lab Blank Contamination
Manganese	U	B08Y91, B08YC5, B08YD5	Lab Blank Contamination
Selenium	U	B08Y91, B08YC5, B08YD0, B08YD5	Lab Blank Contamination
Sodium	U	B08YD0, B08YD5	Lab Blank Contamination
Zinc	U	B08Y91	Lab Blank Contamination
Calcium	J	B08YD0, B08YD5	Negative Lab Blank Results
Lead	R	B08Y91, B08YC5, B08YD0, B08YD5	ICS Not Analyzed

INORGANIC ANALYSIS, WATER MATRIX, (μg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y92																		
Sample Number		B08Y92		B08YC6		B08YD1		B08YD6											
Location		199-F8-2		199-F8-2		EB-1		EB-2											
Remarks		FIL		DUP, FIL		EB, FIL		EB, FIL											
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93											
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	22.8	U	22.8	U	22.8	U	22.8	U										
Antimony	60	17.9	U	17.9	U	17.9	U	17.9	U										
Arsenic	10	4.3		1.7	U	1.7	U	1.7	U										
Barium	200	47.2		46.6		1.0	U	1.0	U										
Beryllium	5	0.40	U	0.40	U	0.40	U	0.40	U										
Cadmium	5	1.5	U	1.5	U	1.5	U	1.5	U										
Calcium	5000	97700		97600		83.4	U	49.4	U										
Chromium	10	5.8	J	4.4	J	1.8	UJ	1.8	UJ										
Cobalt	50	1.5	U	1.5	U	1.5	U	1.5	U										
Copper	25	2.5	U	2.2	U	2.2	U	2.2	U										
Iron	100	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ										
Lead	3	1.5	R	1.2	R	1.4	R	1.5	R										
Magnesium	5000	25200		25200		26.6	U	26.6	U										
Manganese	15	1.0	U	1.2	U	1.2	U	1.4	U										
Mercury	0.2	0.10	U	0.10	U	0.10	U	0.10	U										
Nickel	40	3.7	U	3.7	U	3.7	U	3.7	U										
Potassium	5000	7920		7890		85.5	U	85.5	U										
Selenium	5	4.3		3.3		2.5		2.3	U										
Silver	10	3.4	U	3.4	U	3.4	U	3.4	U										
Sodium	5000	31700		31600		134	U	135	U										
Thallium	10	1.1	U	1.1	U	1.1	U	1.1	U										
Vanadium	50	7.6		5.0		2.3	U	2.3	U										
Zinc	20	4.1	U	5.0	U	4.1	U	4.1	U										
Cyanide	10	N/A		N/A		N/A		N/A											

DUP = Duplicate, EB = Equipment Blank, FIL = Filtered, N/A = Not Applicable

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y92	REVIEWER: KG			DATE: 10/21/93				PAGE 1 OF 2	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Calcium	42.3			ug/L	212		B08YD1, B08YD6	U
CCB	Copper	10.7			ug/L	53.5		B08Y92	U
CCB	Manganese	1.7			ug/L	8.5		B08Y92, B08YC6, B08YD1, B08YD6	U
CCB	Selenium	2.3			ug/L	11.5		B08Y92, B08YC6, B08YD1	U
PBW	Sodium	104.19			ug/L	521		B08YD1, B08YD6	U
CCB	Zinc	5.7			ug/L	28.5		B08YC6	U
PBW	Chromium	-2.05			ug/L		20.5	B08Y92, B08YC6, B08YD1, B08YD6	J
PBW	Iron	-12.17			ug/L		121.7	B08Y92, B08YC6, B08YD1, B08YD6	J

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y92	REVIEWER: KG			DATE: 10/21/93				PAGE 2 OF 2	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	2X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Chromium	-2.1			ug/L	4.2		B08YD1, B08YD6	J

DATA QUALIFICATION SUMMARY

SDG: B08Y92	REVIEWER: KG	DATE: 10/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Calcium	U	B08YD1, B08YD6	Lab Blank Contamination
Copper	U	B08Y92	Lab Blank Contamination
Manganese	U	B08Y92, B08YC6, B08YD1, B08YD6	Lab Blank Contamination
Selenium	U	B08Y92, B08YC6, B08YD1	Lab Blank Contamination
Sodium	U	B08YD1, B08YD6	Lab Blank Contamination
Zinc	U	B08YC6	Lab Blank Contamination
Chromium	J	B08Y92, B08YC6, B08YD1, B08YD6	Negative Blank Contamination
Iron	J	B08Y92, B08YC6, B08YD1, B08YD6	Negative Blank Contamination
Lead	R	B08Y92, B08YC6, B08YD1, B08YD6	ICS Not Performed

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y96																				
Sample Number		B08Y96		B08YF1																	
Location		199-F8-3		199-F8-4																	
Remarks		NV		NV																	
Sample Date		07/22/93		07/22/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	40.7		34.8																	
Antimony	60	17.9	U	17.9	U																
Arsenic	10	3.8		3.7																	
Barium	200	116		37.5																	
Beryllium	5	0.40	U	0.40	U																
Cadmium	5	1.5	U	1.5	U																
Calcium	5000	144000		71700																	
Chromium	10	30.1		18.9																	
Cobalt	50	1.5	U	1.5	U																
Copper	25	5.6		2.2	U																
Iron	100	72.3		77.8																	
Lead	3	1.1		1.1	U																
Magnesium	5000	36900		17900																	
Manganese	15	1.4		1.6																	
Mercury	0.2	0.10	U	0.10	U																
Nickel	40	6.2		6.2																	
Potassium	5000	7540		5720																	
Selenium	5	3.7	U	3.7	U																
Silver	10	3.4	U	3.4	U																
Sodium	5000	59900		47300																	
Thallium	10	8.0	U	8.0	U																
Vanadium	50	9.0		10.2																	
Zinc	20	8.8		4.1	U																
Cyanide	10	10.0	U	10.0	U																

NV = Not Validated

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y97																				
Sample Number		B08Y97		B08YF2																	
Location		199-F8-3		199-F8-4																	
Remarks		NV, FIL		NV, FIL																	
Sample Date		07/22/93		07/22/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	27.0		22.8	U																
Antimony	60	21.9		17.9	U																
Arsenic	10	1.7	U	4.9																	
Barium	200	135		36.8																	
Beryllium	5	0.40	U	0.40	U																
Cadmium	5	1.5	U	1.5	U																
Calcium	5000	148000		69800																	
Chromium	10	24.6		11.6																	
Cobalt	50	1.9		1.5	U																
Copper	25	2.2	U	2.2	U																
Iron	100	10.0		8.1																	
Lead	3	1.9		1.1	U																
Magnesium	5000	38200		17400																	
Manganese	15	1.5		0.60	U																
Mercury	0.2	0.10	U	0.10	U																
Nickel	40	3.7	U	3.7	U																
Potassium	5000	7630		5650																	
Selenium	5	2.3	U	2.3	U																
Silver	10	3.4	U	3.4	U																
Sodium	5000	61800		46700																	
Thallium	10	1.1	U	1.1	U																
Vanadium	50	7.9		9.5																	
Zinc	20	4.1	U	4.1	U																
Cyanide	10	N/A		N/A																	

NV = Not Validated, FIL = Filtered, N/A = Not Applicable

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: Roy F. Weston																			
Case	SDG: B08YB1																		
Sample Number		B08YB1		B08YB2															
Location		199-F7-1		199-F7-1															
Remarks		Split		Split, FIL															
Sample Date		07/19/93		07/19/93															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	27.00	U	59.60	U																
Antimony	60	47.00	U	47.00	U																
Arsenic	10	8.20	J	7.50	J																
Barium	200	48.10		48.60																	
Beryllium	5	1.90		1.00	U																
Cadmium	5	5.00	U	5.00	U																
Calcium	5000	59700		63400																	
Chromium	10	5.00	U	5.00	U																
Cobalt	50	8.00	U	8.00	U																
Copper	25	6.00	U	6.00	U																
Iron	100	30.80		13.00	U																
Lead	3	2.00	UJ	2.00	UJ																
Magnesium	5000	19000		20300																	
Manganese	15	2.00	U	2.00	U																
Mercury	0.2	0.10	U	0.10	U																
Nickel	40	14.00	U	14.00	U																
Potassium	5000	7410		7410																	
Selenium	5	2.00	R	10.90	R																
Silver	10	6.00	U	6.00	U																
Sodium	5000	57400		59600																	
Thallium	10	4.00	UJ	4.00	UJ																
Vanadium	50	15.30		19.80																	
Zinc	20	28.90	U	9.00	U																
Cyanide	10	10.00	UJ	N/A																	

FIL = Filtered, N/A = Not Applicable

BLANK AND SAMPLE DATA SUMMARY

SDG: B08YB1	REVIEWER: KG			DATE: 10/20/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Aluminum	44.5			ug/L	222		B08YB2	U
PBW	Selenium	3.7			ug/L	18.5		B08YB1, B08YB2	U
PBW	Zinc	9.4			ug/L	47.0		B08YB1	U

ACCURACY DATA SUMMARY

SDG: B08YB1	REVIEWER: KG	DATE: 10/20/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08YB1S	Selenium	0.0	B08YB1, B08YB2	R
B08YB1A	Lead	71.2	B08YB1	J
B08YB2A	Lead	73.9	B08YB2	J

DATA QUALIFICATION SUMMARY

SDG: B08YB1	REVIEWER: KG	DATE: 10/20/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B08YB2	Lab Blank Contamination
Selenium	U	B08YB1, B08YB2	Lab Blank Contamination
Zinc	U	B08YB1	Lab Blank Contamination
Selenium	R	B08YB1, B08YB2	Matrix Spike %R < 30%
Lead	J	B08YB1, B08YB2	GFAA Analytical Spike Recovery
Arsenic	J	B08YB1, B08YB2	Analytical Spike Not Performed
Selenium	J	B08YB1, B08YB2	Analytical Spike Not Performed
Thallium	J	B08YB1, B08YB2	Analytical Spike Not Performed
Cyanide	J	B08YB1	Mid-range Standard Distillation Not Performed

INORGANIC ANALYSIS, WATER MATRIX, (μg/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B08YB5																				
Sample Number		B08YB5		B08YB6																	
Location		199-F8-2		199-F8-2																	
Remarks		Split		Split, FIL																	
Sample Date		07/24/93		07/24/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	27.00	U	27.00	U																
Antimony	60	47.00	U	47.00	U																
Arsenic	10	2.60		2.00	U																
Barium	200	47.30		49.10																	
Beryllium	5	1.00	U	1.00	U																
Cadmium	5	5.00	U	5.00	U																
Calcium	5000	85600		99200																	
Chromium	10	6.00		5.00	U																
Cobalt	50	8.00	U	8.00	U																
Copper	25	6.00	U	6.00	U																
Iron	100	42.40		13.00	U																
Lead	3	2.00	UJ	3.40	J																
Magnesium	5000	22400		25900																	
Manganese	15	2.40		2.00	U																
Mercury	0.2	0.10	U	0.10	U																
Nickel	40	14.00	U	14.00	U																
Potassium	5000	7620		8510																	
Selenium	5	4.00	U	2.20																	
Silver	10	6.00	U	6.00	U																
Sodium	5000	28500		33000																	
Thallium	10	4.00	U	4.00	U																
Vanadium	50	29.30	U	28.10	U																
Zinc	20	9.00		9.00	U																
Cyanide	10	20.00	U	N/A																	

FIL = Filtered, N/A = Not Applicable

BLANK AND SAMPLE DATA SUMMARY

SDG: B08YB5	REVIEWER: KG			DATE: 10/20/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PBW	Vanadium	10.2			ug/L	51		B08YB5, B08YB6	U

ACCURACY DATA SUMMARY

SDG: B08YB5	REVIEWER: KG	DATE: 10/20/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08YB5A	Lead	73.0	B08YB5	J
B08YB6A	Lead	63.5	B08YB6	J

DATA QUALIFICATION SUMMARY

SDG: B08YB5	REVIEWER: KG	DATE: 10/20/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Vanadium	U	B08YB5, B08YB6	Lab Blank Contamination
Lead	J	B08YB5, B08YB6	GFAA Analytical Spike

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WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	WET CHEMISTRY
199-F1-2	B08Y11	W	07/28/93	NV	6-6
	B08Y14	W	07/28/93	NV	6-7
	B08Y15	W	07/29/93	V	6-8
199-F5-1	B08Y16	W	07/23/93	NV	6-14
	B08Y19	W	07/23/93	NV	6-15
	B08Y20	W	07/23/93	V	6-8
199-F5-3	B08Y21	W	07/30/93	NV	6-16
	B08Y24	W	07/30/93	NV	6-17
	B08Y25	W	07/30/93	V	6-8
199-F5-4	B08Y26	W	07/21/93	NV	6-18
	B08Y29	W	07/21/93	NV	6-19
	B08Y30	W	07/21/93	V	6-8
199-F5-6	B08Y31	W	07/21/93	NV	6-18
	B08Y34	W	07/21/93	NV	6-19
	B08Y35	W	07/21/93	V	6-8
199-F5-42	B08Y36	W	07/20/93	NV	6-20
	B08Y39	W	07/20/93	NV	6-21
	B08Y40	W	07/20/93	V	6-8
199-F5-43A	B08Y41	W	07/18/93	V	6-22, 6-23
	B08Y44	W	07/18/93	V	6-28
	B08Y45	W	07/18/93	V	6-8
199-F5-44	B08Y46	W	07/20/93	NV	6-20
	B08Y49	W	07/20/93	NV	6-21
	B08Y50	W	07/20/93	V	6-8
199-F5-45	B08Y51	W	07/17/93	V	6-22, 6-23
	B08Y54	W	07/17/93	V	6-28
	B08Y55	W	07/17/93	V	6-8
199-F5-46	B08Y56	W	07/18/93	V	6-22, 6-23
	B08Y59	W	07/18/93	V	6-28
	B08Y60	W	07/18/93	V	6-9
199-F5-47	B08Y61	W	07/18/93	V	6-22, 6-23
	B08Y64	W	07/18/93	V	6-28
	B08Y65	W	07/18/93	V	6-9
199-F5-48	B08Y66	W	07/17/93	V	6-22, 6-23
	B08Y69	W	07/17/93	V	6-28
	B08Y70	W	07/17/93	V	6-9

WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	WET CHEMISTRY
199-F6-1	B08Y71	W	07/21/93	NV	6-18
	B08Y74	W	07/21/93	NV	6-19
	B08Y75	W	07/21/93	V	6-9
199-F7-1	B08Y76	W	07/19/93	V	6-31, 6-35
	B08Y79	W	07/19/93	V	6-28
	B08Y80	W	07/19/93	V	6-9
	B08YB1	W	07/19/93	V	6-45
	B08YB4	W	07/19/93	V	6-10
	B08YC0	W	07/19/93	V	6-31, 6-35
	B08YC3	W	07/19/93	V	6-28
	B08YC4	W	07/19/93	V	6-10
199-F7-2	B08Y81	W	07/28/93	NV	6-6
	B08Y84	W	07/28/93	NV	6-7
	B08Y85	W	07/28/93	V	6-9
199-F7-3	B08Y86	W	07/28/93	NV	6-6
	B08Y89	W	07/28/93	NV	6-7
	B08Y90	W	07/28/93	V	6-9
199-F8-2	B08Y91	W	07/24/93	V	6-36, 6-39
	B08Y94	W	07/24/93	V	6-40
	B08Y95	W	07/24/93	V	6-9
	B08YB5	W	07/24/93	V	6-48
	B08YB8	W	07/24/93	V	6-10
	B08YC5	W	07/24/93	V	6-36, 6-39
	B08YC8	W	07/24/93	V	6-40
	B08YC9	W	07/24/93	V	6-10
199-F8-3	B08Y96	W	07/22/93	NV	6-43
	B08Y99	W	07/22/93	NV	6-44
	B08YB0	W	07/22/93	V	6-9
199-F8-4	B08YF1	W	07/22/93	NV	6-43
	B08YF4	W	07/22/93	NV	6-44
	B08YF5	W	07/22/93	V	6-10
EB-1	B08YD0	W	07/23/93	V	6-36, 6-39
	B08YD3	W	07/23/93	V	6-40
	B08YD4	W	07/23/93	V	6-10
EB-2	B08YD5	W	07/23/93	V	6-36, 6-39
	B08YD8	W	07/23/93	V	6-40
	B08YD9	W	07/23/93	V	6-10

6.0 WET CHEMISTRY DATA VALIDATION

6.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y15	B08Y44	B08Y91	B08YB1
B08Y41	B08Y76	B08Y94	B08YB5

6.2 HOLDING TIMES

Analytical holding times for alkalinity, ammonia, nitrogen, chloride, COD, fluoride, hydrazine, nitrate-nitrite, pH, phosphate, specific conductance, sulfate, sulfide, TDS, TOC and TOX were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: 28 days for ammonia-nitrogen, chloride, COD, fluoride, NO3NO2, specific conductance, sulfate and TOC; 14 days for alkalinity and hydrazine; seven days for sulfide, TDS and TOX; 72 hours for pH; and 48 hours for phosphate.

The 72-hour holding time for pH was exceeded and all associated results were flagged "J" in the following samples:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.
- Sample numbers B08Y91, B08YC5, B08YD0 and B08YD5 in SDG No. B08Y91.
- Sample number B08YB5 in SDG No. B08YB5.

The 48-hour holding time for phosphate was exceeded and the associated results were flagged "J" in the following samples:

- Sample number B08YB1 in SDG No. B08YB1.
- Sample number B08YB5 in SDG No. B08YB5.

The 14-day holding time for hydrazine was exceeded and all associated results were flagged "J" in the following samples:

- All samples in SDG No. B08Y15.

The 48-hour holding time for phosphate was grossly exceeded and all associated results were rejected and flagged "R" in the following samples:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.
- Sample numbers B08Y76 and B08YC0 in SDG No. B08Y76.
- Sample numbers B08Y91, B08YC5, B08YD0 and B08YD5 in SDG No. B08Y91.

Holding times for all other analytes reviewed met QC requirements.

6.3 CALIBRATIONS

The laboratory failed to check the titrant normality for the alkalinity analyses in SDG Nos. B08Y41, B08Y76, B08Y91, B08YB1 and B08YB5. All associated results were rejected and flagged "R".

6.3.1 Initial Calibration

The following calibration procedures must be conducted:

- At least a blank and three standards were used to establish the ion chromatography, ion selective electrode, spectrophotometer, TOC analyzer and TOX analyzer calibrations prior to sample analysis and the correlation was $\geq$0.995.

Instrument calibrations were not performed for the sulfide, COD and electrical conductivity analyses in SDG Nos. B08Y41 and B08Y91. All associated results were rejected and flagged "R".

Instrument calibrations were not performed for the TOX analyses in SDG Nos. B08Y44, B08Y76, B08Y94, B08YB1 and B08YB5. All associated results were rejected and flagged "R".

Insufficient instrument calibrations were performed for the TOC analyses in SDG Nos. B08Y44, B08Y76 and B08Y91. All associated results were qualified as estimates and flagged "J".

Instrument calibrations were not performed for the sulfide, COD, electrical conductivity and ammonia-nitrogen analyses in SDG Nos. B08Y76 and B08Y91. All associated results were rejected and flagged "R".

Instrument calibration verification was not performed for sulfide analysis in SDG Nos. B08YB1 and B08YB5. All associated results were estimated and flagged "J".

All other initial calibration results were acceptable.

6.3.2 Continuing Calibration Verification

All CCV standards must be analyzed with the required frequency or every 20 samples. The percent recoveries must fall within the 90-110% acceptance windows.

The laboratory failed to perform a ICV/CCV analyses for the ammonia-nitrogen and TOC analyses for SDG No. B08Y41. All associated results were qualified as estimates and flagged "J".

The laboratory failed to perform an ICV for the sulfide analyses for SDG Nos. B08YB1 and B08YB5. All associated results were qualified as estimates and flagged "J".

The CCV %R exceeded the 110% acceptance window for nitrate-nitrite analysis for SDG Nos. B08Y41 and B08Y76. All associated results were qualified as estimates and flagged "J".

All other continuing calibration results were acceptable.

6.4 BLANKS

One laboratory preparation blank is analyzed at a frequency of one every 20 samples. All blank results must fall below the CRQL and if not, all associated data <5 times the amount found in the blank are qualified as non-detected "U".

Due to laboratory blank contamination, sample number B08Y59 in SDG No. B08Y44 was qualified as non-detected and flagged "U" for organic chloride (TOX).

A method blank was not analyzed for nitrate/nitrite, TOC and specific conductance analyses for sample number B08YB1 in SDG No. B08YB1. All associated results were qualified as estimates and flagged "J".

A method blank was not analyzed for COD, TOC, specific conductance and nitrate-nitrite for sample number B08YB5 in SDG No. B08YB5. All associated results were qualified as estimates and flagged "J".

All other laboratory blank results were acceptable.

6.5 ACCURACY

6.5.1 Matrix Spike Recovery

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations.

The matrix spike recovery for organic bromide (TOX) fell below the QC limits and were qualified as estimates and flagged "J" for the following:

- Sample numbers B08Y94, B08YC8, B08YD3 and B08YD8 in SDG No. B08Y94.

The matrix spike recovery for nitrate/nitrate analysis fell below the QC limits and all associated sample results were qualified as estimates and flagged for the following:

- Sample numbers B08Y41, B08Y51, B08Y56, B08Y61 and B08Y66 in SDG No. B08Y41.

The matrix spike recovery for phosphate fell below the limit and the associated sample result qualified as an estimate and flagged "J" for sample number B08YB5 in SDG No. B08YB5.

All other matrix spike results were acceptable.

6.5.2 Laboratory Control Sample Recovery

The LCS monitors the overall performance of the analysis, including the sample preparation. An LCS should be prepared (e.g., digested or distilled) and analyzed with every group of samples which have been prepared together. The performance criteria for aqueous LCS percent recovery is 80 to 120 percent. The performance criteria for solid LCS samples are established through interlaboratory studies coordinated by a certifying agency (e.g., EPA or an independent commercial supplier).

An LCS was not analyzed for COD, TOC, nitrate/nitrite and specific conductance for sample number B08YB1 in SDG No. B08YB1. All associated results were qualified as estimates and flagged "J".

An LCS was not analyzed for COD, TOC, sulfide, ammonia, specific conductance and nitrate-nitrite for sample number B08YB5 in SDG No. B08YB5. All associated results were qualified as estimates and flagged "J".

ICV results obtained from the raw data were used to calculate LCS results. All other LCS results were found to be acceptable.

6.6 PRECISION

Analytical duplicate sample analyses are used to measure laboratory precision and sample homogeneity. Field duplicate analyses are used to measure both the laboratory and the field sampling procedure precision.

All duplicate analyses results were acceptable for this data.

6.7 ANALYTE QUANTITATION AND DETECTION LIMITS

Sample results and reported detection limits were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. In addition, the reviewer verified that the results fell within the linear range of the instrument.

6.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicate that instrument performance was adequate for most analyses. Holding times were exceeded for pH, phosphate and hydrazine in several samples and grossly exceeded for phosphate analyses in one SDG. Instrument calibrations were either missing entirely or insufficiently for sulfide, COD, electrical conductivity, ammonia-nitrogen and TOX analyses in a majority of the data packages. In cases where instrument calibrations had not been performed, results were rejected. Sample results were qualified as estimates when instrument calibration data were incomplete. Rejected results are not usable for any purpose and should not be reported. Estimated results are usable for limited purposes only. All other validated results are considered accurate within the standard error associated with the methods.

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y11																		
Sample Number		B08Y11		B08Y81		B08Y86													
Location		199-F1-2		199-F7-2		199-F7-3													
Remarks		NV		NV		NV													
Sample Date		07/28/93		07/28/93		07/28/93													
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	9.1		12.8		32.3													
Fluoride	300.0	0.7		0.3		0.5													
Phosphate	300.0	0.4	U	0.4	U	0.4	U												
pH (pH units)	9040	7.9		7.9		7.7													
Sulfate	300.0	52		59		102													
Alkalinity	310.1	158		204		204													
TDS	160.1	300		431		577													
Sulfide	9030	1.0	U	1.0	U	1.0	U												
Ammonia, as N	350.3	0.05	U	0.05	U	0.05	U												
COD	410.1	30	U	30	U	30	U												
Elect. Conductivity (umhos/cm)	9050	477		657		874													

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y14																		
Sample Number		B08Y14		B08Y84		B08Y89													
Location		199-F1-2		199-F7-2		199-F7-3													
Remarks		NV		NV		NV													
Sample Date		07/28/93		07/28/93		07/28/93													
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.0	U	1.0	U	2.0													
Organic Bromide	9020	0.01	U	0.01	U	0.01	U												
Organic Chloride	9020	0.01	U	0.01	U	0.01	U												
Organic Iodide	9020	0.01	U	0.01	U	0.01	U												

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: DataChem																			
Case	SDG: B08Y15																		
Sample Number		B08Y15		B08Y20		B08Y25		B08Y30		B08Y35		B08Y40		B08Y45		B08Y50		B08Y55	
Location		199-F1-2		199-F5-1		199-F5-3		199-F5-4		199-F5-6		199-F5-42		199-F5-43A		199-F5-44		199-F5-45	
Remarks																			
Sample Date		07/29/93		07/23/93		07/30/93		07/21/93		07/21/93		07/20/93		07/18/93		07/20/93		07/17/93	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hydrazine	D1385	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ

DUP = Duplicate, EB = Equipment Blank

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																	
Laboratory: DataChem																	
Case	SDG: B08Y15																
Sample Number		B08Y60		B08Y65		B08Y70		B08Y75		B08Y80		B08Y85		B08Y90		B08Y95		B08YB0	
Location		199-F5-46		199-F5-47		199-F5-48		199-F6-1		199-F7-1		199-F7-2		199-F7-3		199-F8-2		199-F8-3	
Remarks																			
Sample Date		07/18/93		07/18/93		07/17/93		07/21/93		07/19/93		07/28/93		07/28/93		07/24/93		07/22/93	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hydrazine	D1385	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ

DUP = Duplicate, EB = Equipment Blank

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: DataChem																			
Case	SDG: B08Y15																		
Sample Number		B08YB4		B08YB8		B08YC4		B08YC9		B08YD4		B08YD9		B08YF5					
Location		199-F7-1		199-F8-2		199-F7-1		199-F8-2		EB-1		EB-2		199-F8-4					
Remarks		Split		Split		DUP		DUP		EB		EB							
Sample Date		07/19/93		07/24/93		07/19/93		07/24/93		07/23/93		07/23/93		07/22/93					
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hydrazine	D1385	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ	3.0	UJ				

DUP = Dupilcate, EB = Equipment Blank

HOLDING TIME SUMMARY

SDG: B08Y15	REVIEWER: LM			DATE: 10/27/93		PAGE 1 OF 2	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B08Y15	Hydrazine	7/29/93		8/14/93		14	J
B08Y20	Hydrazine	7/23/93		8/14/93		14	J
B08Y25	Hydrazine	7/30/93		8/14/93		14	J
B08Y30	Hydrazine	7/21/93		8/14/93		14	J
B08Y35	Hydrazine	7/21/93		8/14/93		14	J
B08Y40	Hydrazine	7/20/93		8/14/93		14	J
B08Y45	Hydrazine	7/18/93		8/14/93		14	J
B08Y50	Hydrazine	7/20/93		8/14/93		14	J
B08Y55	Hydrazine	7/17/93		8/14/93		14	J
B08Y60	Hydrazine	7/18/93		8/14/93		14	J
B08Y65	Hydrazine	7/18/93		8/14/93		14	J
B08Y70	Hydrazine	7/17/93		8/14/93		14	J
B08Y75	Hydrazine	7/21/93		8/14/93		14	J
B08Y80	Hydrazine	7/19/93		8/14/93		14	J
B08Y85	Hydrazine	7/28/93		8/14/93		14	J
B08Y90	Hydrazine	7/28/93		8/14/93		14	J

HOLDING TIME SUMMARY

SDG: B08Y15	REVIEWER: LM			DATE: 10/27/93		PAGE 2 OF 2	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B08Y95	Hydrazine	7/24/93		8/14/93		14	J
B08YB0	Hydrazine	7/22/93		8/14/93		14	J
B08YB4	Hydrazine	7/19/93		8/14/93		14	J
B08YB8	Hydrazine	7/24/93		8/14/93		14	J
B08YC4	Hydrazine	7/19/93		8/14/93		14	J
B08YC9	Hydrazine	7/24/93		8/14/93		14	J
B08YD4	Hydrazine	7/23/93		8/14/93		14	J
B08YD9	Hydrazine	7/23/93		8/14/93		14	J
B08YF5	Hydrazine	7/22/93		8/14/93		14	J

DATA QUALIFICATION SUMMARY

SDG: B08Y15	REVIEWER: LM	DATE: 10/27/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Hydrazine	J	All	Holding Times Exceeded

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																	
Laboratory: TMA																	
Case	SDG: B08Y16																
Sample Number		B08Y16															
Location		199-F5-1															
Remarks		NV															
Sample Date		07/23/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	1.6															
Fluoride	300.0	0.10															
Phosphate	300.0	0.40	U														
pH (pH units)	9040	7.8															
Sulfate	300.0	20															
Alkalinity	310.1	85															
TDS	160.1	154															
Sulfide	9030	1.0	U														
Ammonia, as N	350.3	0.05	U														
COD	410.1	30	U														
Elect. Conductivity (umhos/cm)	9050	221															

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: Roy F. Weston																			
Case	SDG: B08Y19																		
Sample Number		B08Y19																	
Location		199-F5-1																	
Remarks		NV																	
Sample Date		07/23/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Organic Carbon	415.1	1.0	U																
Organic Bromide	4020	0.01	U																
Organic Chloride	4020	0.01	U																
Organic Iodide	4020	0.01	U																

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y21																		
Sample Number		B08Y21																	
Location		199-F5-3																	
Remarks		NV																	
Sample Date		07/30/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	5.0																	
Fluoride	300.0	0.1																	
Phosphate	300.0	0.4	U																
pH (pH units)	9040	7.9																	
Sulfate	300.0	78																	
Alkalinity	310.1	86																	
TDS	160.1	229																	
Sulfide	9030	1.0	U																
Ammonia, as N	350.3	0.33																	
COD	410.1	30	U																
Elect. Conductivity	9050	378																	
(umhos/cm)																			

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y24																		
Sample Number		B08Y24																	
Location		199-F5-3																	
Remarks		NV																	
Sample Date		07/30/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.0	U																
Organic Bromide	9020	0.01	U																
Organic Chloride	9020	0.01	U																
Organic Iodide	9020	0.01	U																

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y26																		
Sample Number		B08Y26		B08Y31		B08Y71													
Location		199-F5-4		199-F5-6		199-F6-1													
Remarks		NV		NV		NV													
Sample Date		07/21/93		07/21/93		07/21/93													
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	34.9		7.6		1.2													
Fluoride	300.0	0.2		0.1		0.2													
Phosphate	300.0	0.4	U	0.4	U	0.4	U												
pH (pH units)	9040	7.9		7.8		8.0													
Sulfate	300.0	275		41		13													
Alkalinity	310.1	200		93		79													
TDS	160.1	512		221		149													
Sulfide	9030	1.0	U	1.0	U	1.0	U												
Ammonia, as N	350.3	0.05	U	0.05	U	0.05	U												
COD	410.1	30	U	30	U	30	U												
Elect. Conductivity (umhos/cm)	9050	766		318		187													

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y29																		
Sample Number		B08Y29		B08Y34		B08Y74													
Location		199-F5-4		199-F5-6		199-F6-1													
Remarks		NV		NV		NV													
Sample Date		07/21/93		07/21/93		07/21/93													
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.5		1.0	U	1.0	U												
Organic Bromide	9020	0.02		0.01	U	0.01	U												
Organic Chloride	9020	0.01	U	0.01	U	0.01	U												
Organic Iodide	9020	0.01	U	0.01	U	0.01	U												

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y36																		
Sample Number		B08Y36		B08Y46															
Location		199-F5-42		199-F5-44															
Remarks		NV		NV															
Sample Date		07/20/93		07/20/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	1.1		2.8															
Fluoride	300.0	0.1		0.1															
Phosphate	300.0	0.4	U	0.4	U														
pH (pH units)	9040	7.4		7.8															
Sulfate	300.0	13		21															
Alkalinity	310.1	87		76															
TDS	160.1	137		149															
Sulfide	9030	1.0	U	1.0	U														
Ammonia, as N	350.3	0.05	U	0.05	U														
COD	410.1	30	U	30	U														
Elect. Conductivity (umhos/cm)	9050	190		202															

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y39																		
Sample Number		B08Y39		B08Y49															
Location		199-F5-42		199-F5-44															
Remarks		NV		NV															
Sample Date		07/20/93		07/20/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.0	U	1.0	U														
Organic Bromide	9020	0.01	U	0.01	U														
Organic Chloride	9020	0.01	U	0.01	U														
Organic Iodide	9020	0.01	U	0.01	U														

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y41																		
Sample Number		B08Y41		B08Y51		B08Y56		B08Y61		B08Y66									
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48									
Remarks																			
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93									
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	1.0		9.3		16.3		35.9		26.7									
Fluoride	300.0	0.1		0.3		0.2		0.3		0.2									
Phosphate	300.0	0.4	R	0.4	R	0.4	R	0.4	R	0.4	R								
pH (pH units)	9040	7.7	J	8.0	J	7.9	J	7.8	J	7.9	J								
Sulfate	300.0	10		29		71		100		81									
Alkalinity	310.1	74	R	127	R	178	R	211	R	196	R								
TDS	160.1	115		249		414		577		500									
Sulfide	9030	1.0	R	1.0	R	1.0	R	1.0	R	1.0	R								
Ammonia, as N	350.3	0.05	UJ	0.05	UJ	0.05	UJ	0.05	UJ	0.05	UJ								
COD	410.1	30	R	30	R	30	R	30	R	30	R								
Elect. Conductivity (umhos/cm)	9050	160	R	339	R	563	R	783	R	693	R								

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg N/L)

Project: WESTINGHOUSE-HANFORD																	
Laboratory: TMA																	
Case	SDG: B08Y41																
Sample Number		B08Y41		B08Y51		B08Y56		B08Y61		B08Y66							
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48							
Remarks																	
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93							
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
N03N02	353.2	0.32	J	4.22	J	11.5	J	23.8	J	21.0	J								

HOLDING TIME SUMMARY

SDG: B08Y41	REVIEWER: DW			DATE: 10/21/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B08Y41	pH	7/18/93		7/22/93		3	J
B08Y51	pH	7/17/93		7/22/93		3	J
B08Y56	pH	7/18/93		7/22/93		3	J
B08Y61	pH	7/18/93		7/22/93		3	J
B08Y66	pH	7/17/93		7/22/93		3	J
B08Y41	Phosphate	7/18/93		7/29/93		2	R
B08Y51	Phosphate	7/17/93		7/29/93		2	R
B08Y56	Phosphate	7/18/93		7/29/93		2	R
B08Y61	Phosphate	7/18/93		7/29/93		2	R
B08Y66	Phosphate	7/17/93		7/29/93		2	R

CALIBRATION DATA SUMMARY

SDG: B08Y41	REVIEWER: DW	DATE: 10/21/93		PAGE 1 OF 1	
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
8/11/93	Nitrate/Nitrite		CCV %R >110% (%R=112%)	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	J

ACCURACY DATA SUMMARY

SDG: B08Y41	REVIEWER: DW	DATE: 10/21/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08Y66S	Nitrate/Nitrite	126	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	J

DATA QUALIFICATION SUMMARY

SDG: B08Y41	REVIEWER: DW	DATE: 10/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH	J	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	Holding Times Exceeded
Phosphate	R	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	Holding Times Grossly Exceeded
Sulfide	R	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	Calibrations Not Performed
COD	R	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	Calibrations Not Performed
Elect. Conductivity	R	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	Current Calibrations Not Performed
Alkalinity	R	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	Titrant Normality Not Verified
Ammonia, as N	J	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	ICV/CCV Not Performed
Nitrate/Nitrite	J	B08Y41, B08Y51, B08Y56, B08Y61, B08Y66	CCV %R > 110% MS %R > 125%

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y44																		
Sample Number		B08Y44		B08Y54		B08Y59		B08Y64		B08Y69		B08Y79		B08YC3					
Location		199-F5-43A		199-F5-45		199-F5-46		199-F5-47		199-F5-48		199-F7-1		199-F7-1					
Remarks														DUP					
Sample Date		07/18/93		07/17/93		07/18/93		07/18/93		07/17/93		07/19/93		07/19/93					
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.0	J	1.0	J	1.0	J	1.5	J	1.3	J	1.2	J	1.2	J				
Organic Bromide	9020	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R				
Organic Chloride	9020	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R				
Organic Iodide	9020	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R	0.01	R				

DUP = Duplicate

BLANK AND SAMPLE DATA SUMMARY

SDG: B08Y44	REVIEWER: DW			DATE: 10/25/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
B08Y59BLK	Organic Chloride	0.02			mg/L	0.10		B08Y59	U

DATA QUALIFICATION SUMMARY

SDG: B08Y44	REVIEWER: DW	DATE: 10/25/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Organic Chloride (TOX)	R	B08Y44, B08Y54, B08Y59, B08Y64, B08Y69, B08Y79, B08YC4	Instrument Calibrations Not Performed
Organic Bromide (TOX)	R	B08Y44, B08Y54, B08Y59, B08Y64, B08Y69, B08Y79, B08YC4	Instrument Calibrations Not Performed
Organic Iodide (TOX)	R	B08Y44, B08Y54, B08Y59, B08Y64, B08Y69, B08Y79, B08YC4	Instrument Calibrations Not Performed
TOC	J	B08Y44, B08Y54, B08Y59, B08Y64, B08Y69, B08Y79, B08YC4	Insufficient Calibration Verification
Organic Chloride (TOX)	U	B08Y59	Lab Blank Contamination

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y76																		
Sample Number		B08Y76		B08YC0															
Location		199-F7-1		199-F7-1															
Remarks				DUP															
Sample Date		07/19/93		07/19/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	16.9		15.8															
Fluoride	300.0	0.7		0.7															
Phosphate	300.0	0.4	R	0.4	R														
pH (pH units)	9040	7.6	J	7.8	J														
Sulfate	300.0	69		70															
Alkalinity	310.1	188	R	190	R														
TDS	160.2	471		467															
Sulfide	376.1	1.0	R	1.0	R														
Ammonia, as N	350.3	0.05	UJ	0.05	UJ														
COD	410.1	30	R	30	R														
Elect. Conductivity (umhos/cm)	9050	691	R	716	R														

DUP = Duplicate

HOLDING TIME SUMMARY

SDG: B08Y76	REVIEWER: DW			DATE: 10/22/93		PAGE_1_OF_1_	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B08Y76	pH	7/19/93		7/23/93		3	J
B08YC0	pH	7/19/93		7/23/93		3	J
B08Y76	Phosphate	7/19/93		7/29/93		2	R
B08YC0	Phosphate	7/19/93		7/29/93		2	R

CALIBRATION DATA SUMMARY

SDG: B08Y76	REVIEWER: DW	DATE: 10/22/93		PAGE 1 OF 1	
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
8/11/93	Nitrate/Nitrite		CCV %R >110% (%R=112%)	B08Y76, B08YC0	J

DATA QUALIFICATION SUMMARY

SDG: B08Y76	REVIEWER: DW	DATE: 10/25/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH	J	B08Y76, B08YC0	Holding Times Exceeded
Phosphate	R	B08Y76, B08YC0	Holding Times Grossly Exceeded
Sulfide	R	B08Y76, B08YC0	Instrument Calibrations Not Performed
COD	R	B08Y76, B08YC0	Instrument Calibrations Not Performed
Elect. Conductivity	R	B08Y76, B08YC0	Instrument Calibrations Not Current
Alkalinity	R	B08Y76, B08YC0	Titrant Normality Not Verified
Ammonia	J	B08Y76, B08YC0	ICV/CCV Not Performed
Nitrate/Nitrite	J	B08Y76, B08YC0	CCV %R > 110% (%R = 112%)

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg N/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y76																		
Sample Number		B08Y76		B08YC0															
Location		199-F7-1		199-F7-1															
Remarks				DUP															
Sample Date		07/19/93		07/19/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
N03N02	353.2	20.5	J	20.1	J														

DUP = Duplicate

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y91																		
Sample Number		B08Y91		B08YC5		B08YD0		B08YD5											
Location		199-F8-2		199-F8-2		EB-1		EB-2											
Remarks				DUP		EB		EB											
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93											
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	14.6		13.5		0.2	U	0.2	U										
Fluoride	300.0	0.2		0.2		0.1	U	0.1	U										
Phosphate	300.0	0.4	R	0.4	R	0.4	R	0.4	R										
pH (pH units)	9040	7.7	J	7.8	J	5.9	J	5.9	J										
Sulfate	300.0	82		85		1	U	1											
Alkalinity	310.1	262	R	262	R	2	R	2	R										
TDS	160.1	609		574		38		9											
Sulfide	376.1	1	R	1	R	1	R	1	R										
Ammonia, as N	350.3	0.05	R	0.05	R	0.05	R	0.05	R										
COD	410.1	30	R	30	R	30	R	30	R										
Elect. Conductivity (umhos/cm)	120.1	830	R	835	R	6	R	6	R										

DUP = Duplicate, EB = Equipment Blank

HOLDING TIME SUMMARY

SDG: B08Y91	REVIEWER: DW			DATE: 10/25/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B08Y91	pH	7/24/93		7/28/93		3	J
B08YC5	pH	7/24/93		7/28/93		3	J
B08YD0	pH	7/23/93		7/28/93		3	J
B08YD5	pH	7/23/93		7/28/93		3	J
B08Y91	Phosphate	7/24/93		8/02/93		2	R
B08YC5	Phosphate	7/24/93		8/02/93		2	R
B08YD0	Phosphate	7/23/93		8/02/93		2	R
B08YD5	Phosphate	7/23/93		8/06/93		2	R

DATA QUALIFICATION SUMMARY

SDG: B08Y91	REVIEWER: DW	DATE: 10/25/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH	J	B08Y91, B08YC5, B08YD0, B08YD5	Holding Times Exceeded
Phosphate	R	B08Y91, B08YC5, B08YD0, B08YD5	Holding Times Grossly Exceeded
Sulfide	R	B08Y91, B08YC5, B08YD0, B08YD5	Calibrations Not Performed
COD	R	B08Y91, B08YC5, B08YD0, B08YD5	Calibrations Not Performed
Elect. Conductivity	R	B08Y91, B08YC5, B08YD0, B08YD5	Calibrations Not Correct or Insufficient
Ammonia, as N	R	B08Y91, B08YC5, B08YD0, B08YD5	Calibrations Not Correct or Insufficient
Alkalinity	R	B08Y91, B08YC5, B08YD0, B08YD5	Titrant Normality Not Verified
TOC	J	B08Y91, B08YC5, B08YD0, B08YD5	Insufficient Calibration/Instrument Response

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg N/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y91																		
Sample Number		B08Y91		B08YC5		B08YD0		B08YD5											
Location		199-F8-2		199-F8-2		EB-1		EB-2											
Remarks				DUP		EB		EB											
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93											
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
N03N02	353.2	22.8		23.8		0.25	U	0.25	U										

DUP = Duplicate, EB = Equipment Blank

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y94																		
Sample Number		B08Y94		B08YC8		B08YD3		B08YD8											
Location		199-F8-2		199-F8-2		EB-1		EB-2											
Remarks				DUP		EB		EB											
Sample Date		07/24/93		07/24/93		07/23/93		07/23/93											
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	1.7	J	1.7	J	1.0	J	1.0	J										
Organic Bromide	9020	0.03	R	0.05	R	0.01	R	0.01	R										
Organic Chloride	9020	0.01	R	0.01	R	0.01	R	0.01	R										
Organic Iodide	9020	0.01	R	0.01	R	0.01	R	0.01	R										

DUP = Duplicate, EB = Equipment Blank

ACCURACY DATA SUMMARY

SDG: B08Y94	REVIEWER: DW	DATE: 10/25/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08YD8MS	Organic Bromide	65	B08Y94, B08YC8, B08YD3, B08YD8	J

DATA QUALIFICATION SUMMARY

SDG: B08Y94	REVIEWER: DW	DATE: 10/25/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Organic Bromide (TOX)	R	B08Y94, B08YC8, B08YD3, B08YD8	Instrument Calibrations Not Performed
Organic Chloride (TOX)	R	B08Y94, B08YC8, B08YD3, B08YD8	Instrument Calibrations Not Performed
Organic Iodide (TOX)	R	B08Y94, B08YC8, B08YD3, B08YD8	Instrument Calibrations Not Performed
Organic Bromide (TOX)	J	B08Y94, B08YC8, B08YD3, B08YD8	Matrix Spike Recovery

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y96																		
Sample Number		B08Y96		B08YF1															
Location		199-F8-3		199-F8-4															
Remarks		NV		NV															
Sample Date		07/22/93		07/22/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloride	300.0	8.6		10.2															
Fluoride	300.0	0.3		0.3															
Phosphate	300.0	0.4	U	0.4	U														
pH (pH units)	9040	7.3		7.9															
Sulfate	300.0	59		71															
Alkalinity	310.1	491		203															
TDS	160.1	739		527															
Sulfide	9030	1.0	U	1.0	U														
Ammonia, as N	350.3	0.05	U	0.05	U														
COD	410.1	30	U	30	U														
Elect. Conductivity (umhos/cm)	9050	1100		679															

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y99																		
Sample Number		B08Y99		B08YF4															
Location		199-F8-3		199-F8-4															
Remarks		NV		NV															
Sample Date		07/22/93		07/22/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
TOC	415.1	3.6		1.0	U														
Organic Bromide	9020	0.05		0.02															
Organic Chloride	9020	0.01	U	0.01	U														
Organic Iodide	9020	0.01	U	0.01	U														

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: Roy F. Weston																			
Case	SDG: B08YB1																		
Sample Number		B08YB1																	
Location		199-F7-1																	
Remarks		Split																	
Sample Date		07/19/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Alkalinity	310.1	184	R																
Chloride	300.0	18.1																	
Fluoride	300.0	0.86																	
COD	410.1	5.0	UJ																
Phosphate	300.0	0.25	UJ																
Sulfate	300.0	72.5																	
N03N02 (mg N/L)	353.2	21.7	J																
Ammonia, as N	350.3	0.10	UJ																
TOC	415.1	1.5	J																
pH (pH units)	150.1	7.7																	
Sulfide	376.1	0.10	UJ																
TDS	160.2	461																	
TOX (ug/L)	9020.0	20.0	R																
Specific Conductance (umhos/cm)	120.1	693	J																

HOLDING TIME SUMMARY

SDG: B08YB1	REVIEWER: KG			DATE: 10/25/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B08YB1	Phosphate	7/19/93		7/22/93		2	J

DATA QUALIFICATION SUMMARY

SDG: B08YB1	REVIEWER: KG	DATE: 10/25/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Phosphate	J	B08YB1	Holding Times Exceeded
Sulfide	J	B08YB1	ICV Not Analyzed
N03N02	J	B08YB1	Method Blank Not Analyzed
TOC	J	B08YB1	Method Blank Not Analyzed
Specific Conductance	J	B08YB1	Method Blank Not Analyzed
COD	J	B08YB1	LCS Not Analyzed
N03N02	J	B08YB1	LCS Not Analyzed
TOC	J	B08YB1	LCS Not Analyzed
Specific Conductance	J	B08YB1	LCS Not Analyzed
Alkalinity	R	B08YB1	Titrant Normality Not Checked
TOX	R	B08YB1	Instrument Calibration Data Not Provided

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: Roy F. Weston																			
Case	SDG: B08YB5																		
Sample Number		B08YB5																	
Location		199-F8-2																	
Remarks		Split																	
Sample Date		07/24/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Alkalinity	310.1	260	R																
Chloride	300.0	14.9																	
Fluoride	300.0	0.50	U																
COD	410.1	9.7	J																
Phosphate	300.0	0.25	UJ																
Sulfate	300.0	84.2																	
N03N02 (mg N/L)	353.2	20.3	J																
Ammonia, as N	350.3	0.10	UJ																
TOC	415.1	2.4	J																
pH (pH units)	150.1	8.0																	
Sulfide	376.1	0.10	UJ																
TDS	160.2	556																	
TOX (ug/L)	9020.0	21.1	R																
Specific Conductance	120.1	788	J																
(umhos/cm)																			

HOLDING TIME SUMMARY

SDG: B08YB5	REVIEWER: KG			DATE: 10/25/93		PAGE_1_OF_1_	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B08YB5	Phosphate	7/24/93		7/28/93		2	J
B08YB5	pH	7/24/93		8/03/93		7	J

ACCURACY DATA SUMMARY

SDG: B08YB5	REVIEWER: KG	DATE: 10/25/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B08YB5S	Phosphate	70.5	B08YB5	J

DATA QUALIFICATION SUMMARY

SDG: B08YB5	REVIEWER: KG	DATE: 10/25/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Alkalinity	R	B08YB5	Titrant Normality Not Verified
TOX	R	B08YB5	No Instrument Calibration Data Provided
Sulfide	J	B08YB5	ICV Not Analyzed
COD	J	B08YB5	No Method Blank
TOC	J	B08YB5	No Method Blank
Specific Conductance	J	B08YB5	No Method Blank
N03N02	J	B08YB5	No Method Blank
Phosphate	J	B08YB5	Holding Times Exceeded
Phosphate	J	B08YB5	Spike Recovery Outside Control Limit
COD	J	B08YB5	LCS Not Analyzed
Sulfide	J	B08YB5	LCS Not Analyzed
Ammonia	J	B08YB5	LCS Not Analyzed
TOC	J	B08YB5	LCS Not Analyzed
Specific Conductance	J	B08YB5	LCS Not Analyzed
N03N02	J	B08YB5	LCS Not Analyzed

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WELL AND SAMPLE INFORMATION					SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	NV/V	RADIOCHEMISTRY
199-F1-2	B08Y11	W	07/28/93	V	13-4
199-F5-1	B08Y16	W	07/23/93	V	13-4
199-F5-3	B08Y21	W	07/30/93	V	13-4
199-F5-4	B08Y26	W	07/21/93	V	13-5
199-F5-6	B08Y31	W	07/21/93	V	13-5
199-F5-42	B08Y36	W	07/20/93	V	13-5
199-F5-43A	B08Y41	W	07/18/93	V	13-5
199-F5-44	B08Y46	W	07/20/93	V	13-5
199-F5-45	B08Y51	W	07/17/93	V	13-5
199-F5-46	B08Y56	W	07/18/93	V	13-5
199-F5-47	B08Y61	W	07/18/93	V	13-5
199-F5-48	B08Y66	W	07/17/93	V	13-5
199-F6-1	B08Y71	W	07/21/93	V	13-5
199-F7-1	B08Y76 B08YB1 B08YC0	W W W	07/19/93 07/19/93 07/19/93	V V V	13-6 13-7 13-6
199-F7-2	B08Y81	W	07/28/93	V	13-4
199-F7-3	B08Y86	W	07/28/93	V	13-4
199-F8-2	B08Y91 B08YB5 B08YC5	W W W	07/24/93 07/24/93 07/24/93	V V V	13-4 13-8 13-4
199-F8-3	B08Y96	W	07/22/93	V	13-6
199-F8-4	B08YF1	W	07/22/93	V	13-6
EB-1	B08YD0	W	07/23/93	V	13-4
EB-2	B08YD5	W	07/23/93	V	13-4

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7.0 GROSS ALPHA AND GROSS BETA DETERMINATION DATA VALIDATION

7.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y11 B08Y26 B08YB1 B08YB5

7.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

7.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the gas proportional counter used for gross alpha and gross beta determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination as a function of alpha or beta particle energy, and as a function of the mass of material submitted for counting. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

The initial calibration performed for the analysis was not detector-specific, therefore, all associated gross alpha and gross beta results in SDG Nos. B08Y11 and B08Y26 were rejected and flagged "R".

The calibration information submitted was dated after sample analysis for all samples associated with SDG No. B08Y11. All associated gross alpha and gross beta sample results were rejected and flagged "R".

No daily check source was submitted for all samples associated with SDG Nos. B08Y11 and B08Y26. All associated sample results were rejected and flagged "R".

The check source was not identified for all gross alpha and gross beta results associated with SDG Nos. B08Y11, B08Y26,

B08YB1 and B08YB5. All associated sample results were qualified as estimates and flagged "J".

All missing data were requested but were not available.

All other calibration results, including efficiency checks and background counts, were acceptable.

7.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of alpha or beta emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. Acceptable accuracy of spiked sample data must fall within a range of 80 to 120 percent. If spiked sample results were outside this range, the associated data were qualified as estimated and flagged "J/UJ".

Due to a low LCS recovery, the gross alpha results for all samples in SDG No. B08Y26 were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

7.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with activities greater than five times the LLD and with an RPD less than 35 percent are acceptable. If duplicate activities for one or both are <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects and flagged "J" or estimated non-detects and flagged "UJ".

The gross beta RPD results were outside of QC limits for all samples in SDG Nos. B08Y11 and B08Y26. All associated sample results were qualified as estimates and flagged "J".

All other precision results were acceptable.

7.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination.

Due to blank contamination, gross beta results in sample numbers B08Y11, B08Y16, B08Y21, B08Y81, B08Y86 and B08Y91 in SDG No. B08Y11 were qualified as estimates and flagged "J".

All other blank results were acceptable.

7.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

7.8 OVERALL ASSESSMENT AND SUMMARY

A review of QC data indicates that instrument performance was adequate, except where noted above. All gross alpha and gross beta results in two SDGs were rejected and flagged "R" due to calibration problems. All rejected data are unusable for all purposes. All gross alpha and gross beta results were qualified as estimates and flagged "J" for all samples in all SDGs since daily check sources were not identified. Due to low LCS results, all gross alpha results in one SDG were qualified as estimates and flagged "J". All gross beta results in two SDGs were qualified as estimates and flagged "J" due to RPD results outside of QC limits. Due to blank contamination, gross alpha results in several samples were qualified as estimates and flagged "J". Estimated data are considered usable for limited purposes only. All other QC data are considered to be acceptable and usable for all purposes.

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8.0 ALPHA SPECTROSCOPY DATA VALIDATION

8.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y11 B08Y26 B08YB1 B08YB5

8.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

8.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the alpha spectroscopy system used is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each alpha radionuclide region of interest, and a system resolution assessment as measured by the full-width at half maximum for each peak. Initial calibration was performed for each counting geometry used during the analysis of Westinghouse-Hanford samples. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

Peak width (resolution) in the annual calibration was above the 20 KeV control limit for SDG Nos. B08YB1 and B08YB5. All associated alpha spectroscopy results were qualified as estimates and flagged "J".

No daily check source was submitted for all alpha spectroscopy sample results in SDG Nos. B08Y11, B08Y26, B08YB1 and B08YB5. All associated sample results were rejected and flagged "R".

The check source was not identified for all alpha spectroscopy sample results in SDG Nos. B08Y11, B08Y26, B08YB1 and B08YB5. All associated results were qualified as estimates and flagged "J".

All missing data were requested but were not available.

All other calibration results, including efficiency checks and background counts, were acceptable.

8.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of alpha emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable matrix spike or Laboratory Control Sample recovery range is 80 to 120 percent, while that for radiometric yields is 30 to 105%. Spike sample results outside the above ranges resulted in qualification of the associated data as estimated and flagged "J/UJ".

Due to low chemical yields, the isotopic plutonium results for sample numbers B08Y41, B08Y56, B08Y76 and B08YC0 in SDG No. B08Y26 were rejected and flagged "R".

Due to low chemical yields, the americium-241 results for all samples in SDG No. B08Y26 were rejected and flagged "R".

Due to high LCS recovery results, the plutonium-239/240 results for all samples in SDG No. B08Y26 were estimated and flagged "J".

Due to low LCS recovery results, the americium-241 results for all samples in SDG No. B08Y26 were estimated and flagged "J".

No LCS results were submitted for plutonium-238 in SDG Nos. B08Y11 and B08Y26. All associated results were estimated and flagged "J".

All other accuracy results were acceptable.

8.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate samples. Replicates with a RPD less than 35 percent are acceptable. If duplicate activities for one or both are <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects and flagged "J" or estimated non-detects and flagged "UJ".

All precision results were acceptable.

8.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

8.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitations and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

8.8 OVERALL ASSESSMENT AND SUMMARY

A complete review of all QC and calibration data indicates that overall system performance was adequate. Due to low yields americium-241 and isotopic plutonium results in several samples were rejected and flagged "R". No daily check source was submitted for several samples in one SDG. All associated alpha spectroscopy results were rejected. Rejected results are unusable for all purposes. All alpha spectroscopy results from two SDGs were qualified as estimates due to peak widths outside control limits. The check source was not identified for all alpha spectroscopy results in all SDGs. All associated results were qualified as estimates and flagged "J". No LCS results were submitted for plutonium-238 in two SDGs. All associated results were estimated and flagged "J". LCS recovery results were outside of QC limits for plutonium-239/240 and americium-241 in one SDG. All associated results were qualified as estimates and flagged "J". Estimated results are usable for limited purposes only. All other QC data are considered to be acceptable and usable for all purposes.

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9.0 GAMMA SPECTROSCOPY DATA VALIDATION

9.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y11 B08Y26 B08YB1 B08YB5

9.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

9.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the gamma spectroscopy system used is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each gamma radionuclide region of interest, and a system resolution assessment as measured by the full-width at half maximum for each peak. Initial calibration was performed for each counting geometry used during the analysis of Westinghouse-Hanford samples. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

No daily check source was submitted for all sample results in SDG Nos. B08Y11, B08Y26, B08YB1 and B08YB6. All associated sample results were rejected and flagged "R".

The check source was not identified for all gamma spectroscopy results in SDG Nos. B08Y11, B08Y26, B08YB1 and B08YB5. All associated results were qualified as estimates and flagged "J".

All missing data were requested but were not available.

All other calibration results, including efficiency checks and background counts, were acceptable.

9.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of gamma emitting radionuclides. The sample activity as determined by sample analysis is compared to the known activity to assess accuracy. The acceptable spiked recovery range is 80 to 120 percent. If spiked sample results were outside this range the associated data were qualified as estimated and flagged "J/UJ".

All accuracy results were acceptable.

9.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with a RPD less than 35 percent are acceptable. If duplicate activities for one or both are <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects and flagged "J" or estimated non-detects and flagged "UJ".

All precision results were acceptable.

9.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

9.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitations and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

9.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. Daily check sources were not submitted for all samples in all SDGs. The associated sample results were

rejected and flagged "R". All rejected results are unusable for all purposes. Check source was not identified for all SDGs. All associated samples were estimated and flagged "J". Estimated data are considered usable for limited purposes only. All other QC data are considered to be acceptable and usable for all purposes.

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10.0 STRONTIUM-90 DETERMINATION DATA VALIDATION

10.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y11 B08Y26 B08YB1 B08YB5

10.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

10.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background counting system used for strontium-90 determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument detection efficiency determination. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

The initial calibration was not detector-specific for strontium-90 in SDG Nos. B08Y11 and B08Y26. All associated sample results were rejected and flagged "R".

No daily check source was submitted for strontium-90 results in SDG Nos. B08Y11 and B08Y26. All associated sample results were rejected and flagged "R".

The check source was not identified for strontium-90 results in SDG Nos. B08Y11, B08Y26, B08YB1 and B08YB5. All associated sample results were estimated and flagged "J".

All missing data were requested but were not available.

All other calibration results, including efficiency checks and background counts, were acceptable.

10.4 ACCURACY

All spike recoveries should be within the specified QC range of 80 to 120 percent, while all radiotraced samples should show a radiometric yield or recovery between 30 and 105%. Spiked sample results outside the above ranges resulted in qualification of the associated data as estimated.

Due to high LCS recoveries, all strontium-90 results in SDG No. B08Y26 were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

10.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with an RPD less than 35 percent are acceptable. If duplicate activities for one or both are <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects and flagged "J" or estimated non-detects and flagged "UJ".

All precision results were acceptable.

10.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

10.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

10.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. The initial calibration was not detector-

specific for two SDGs. All associated sample results were rejected and flagged "R". No daily check source was submitted for two SDGs. All associated sample results were rejected and flagged "R". All rejected results are unusable for all purposes. The check source was not identified for all SDGs. All associated sample results were estimated and flagged "J". Due to high LCS recovery results, all strontium-90 results in one SDG were qualified as estimates and flagged "J". Estimated data are considered usable for limited purposes only. All other QC data are considered to be acceptable and usable for all purposes.

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11.0 TECHNETIUM-99 DETERMINATION DATA VALIDATION

11.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y11 B08Y26 B08YB1 B08YB5

11.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

11.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background counting system used for technetium-99 determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument detection efficiency determination. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

Initial calibration submitted was not detector-specific for all technetium-99 results in SDG Nos. B08Y11 and B08Y26. All associated results were rejected and flagged "R".

No daily check source was provided for all technetium-99 results in SDG No. B08Y11. All associated results were rejected and flagged "R".

The check source was not identified for all technetium-99 results in SDG Nos. B08YB1 and B08YB5. All associated results were qualified as estimates and flagged "J".

All missing data were requested but were not available.

All other calibration results, including efficiency checks and background counts, were acceptable.

11.4 ACCURACY

All spike recoveries should be within the specified QC range of 80 to 120 percent, while all radiotraced samples should show a radiometric yield or recovery between 30 and 105%. Spiked sample results outside the above ranges resultad in qualification of the associated data as estimated.

All accuracy results were acceptable.

11.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with an RPD less than 35 percent are acceptable. If duplicate activities for one or both are <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects and flagged "J" or estimated non-detects and flagged "UJ".

All precision results were acceptable.

11.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

Due to blank contamination, all technetium-99 results in SDG No. B08Y11 were qualified as estimates and flagged "J".

All other blank results were acceptable.

11.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy. All analyte quantitation and reported detection limits were acceptable.

11.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. Initial calibration submitted was not detector-specific for all technetium-99 results in two SDGs. All associated results were rejected and flagged "R". No daily check

source was provided for one SDG. All associated technetium-99 results were rejected and flagged "R". All rejected results are unusable for all purposes. The check source was not identified for two SDGs. All associated technetium-99 results were qualified as estimates and flagged "J". Due to blank contamination, all technetium-99 samples were qualified as estimates in one SDG. Estimated data are considered usable for limited purposes only. All other QC data are considered to be acceptable and usable for all purposes.

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12.0 CARBON-14 DETERMINATION DATA VALIDATION

12.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y11 B08Y26 B08YB1 B08YB5

12.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

12.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background liquid scintillation counting system used for carbon-14 determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each applicable radionuclide. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

No daily check source was submitted for all carbon-14 results in SDG Nos. B08Y11 and B08Y26. All associated results were rejected and flagged "R".

The daily check source was not identified for carbon-14 results in SDG Nos. B08Y11, B08Y26, B08YB1 and B08YB5. All associated results were qualified as estimates and flagged "J".

All missing data were requested but were not available.

All other calibration results, including efficiency checks and background counts, were acceptable.

12.4 ACCURACY

All spike recoveries should be within the specified QC range of 80 to 120 percent, while all radiometric yields should fall within the range of 30 to 105%. Spiked sample results outside

the above ranges resulted in qualification of the associated data as estimated and flagged "J/UJ".

Due to high chemical yields, carbon-14 results in sample numbers B08Y21, B08Y81, B08Y91, B08YC5 and B08YD0 in SDG No. B08Y11, sample numbers B08Y26, B08Y31, B08Y36, B08Y41, B08Y46, B08Y61, B08Y66, B08Y71, B08Y76, B08Y96, B08YC0 and B08YF1 in SDG No. B08Y26 were rejected and flagged "R".

All other accuracy results were acceptable.

12.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with a RPD less than 35 percent are acceptable. If duplicate activities for one or both are <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects and flagged "J" or estimated non-detects and flagged "UJ".

All precision results were acceptable.

12.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

12.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits were acceptable.

12.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument performance and calibration indicates that the overall system performance is adequate. Due to high chemical yields the carbon-14 results in several samples were rejected. No daily check source was submitted for all carbon-14 results in two SDGs. All associated results were rejected and

flagged "R". Rejected data are unusable for all purposes and should not be reported. The daily check source was not identified for carbon-14 results in all SDGs. All associated results were qualified as estimates and flagged "J". Estimated data are considered usable for limited purposes only. All other QC data are considered to be acceptable and usable for all purposes.

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13.0 TRITIUM DETERMINATION DATA VALIDATION

13.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted for validation and found to be complete:

B08Y11 B08Y26 B08YB1 B08YB5

13.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

13.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background liquid scintillation counting system used for tritium determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each applicable radionuclide. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

No daily check source was submitted for all tritium results in SDG Nos. B08Y11 and B08Y26. All associated results were rejected and flagged "R".

The check source was not identified for tritium in SDG Nos. B08Y11, B08Y26, B08YB1 and B08YB5. All associated results were qualified as estimates and flagged "J".

All missing data were requested but were not available.

All other calibration results, including efficiency checks and background counts, were acceptable.

13.4 ACCURACY

All spike recoveries should be within the specified QC range of 80 to 120 percent, while all radiometric yields should fall

within the range of 30 to 105%. Spiked sample results outside the above ranges resulted in qualification of the associated data as estimated and flagged "J/UJ".

Due to matrix spike recoveries were grossly outside of the QC range, all tritium results for sample number B08YB1 in SDG No. B08YB1 and sample number B08YB5 in SDG No. B08YB5 were rejected and flagged "R".

Due to high yields, all tritium results in sample numbers B08Y31 and B08Y41 in SDG No. B08Y26 were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

13.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with a RPD less than 35 percent are acceptable. If duplicate activities for one or both are <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects and flagged "J" or estimated non-detects and flagged "UJ".

All precision results were acceptable.

13.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

13.7 ANALYTE QUANTITATION AND REPORTED DETECTION LIMITS

Analyte quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All analyte quantitation and reported detection limits and sample results were acceptable.

13.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument performance and calibration indicates that the overall system performance is adequate. No daily check source was submitted for tritium results in two SDGs. All associated results were rejected and flagged "R". Due to poor matrix spike recoveries, tritium results in two SDGs were rejected and flagged "R". Rejected results are unusable for all purposes. The daily check source was not identified for tritium in all SDGs. All associated results were qualified as estimates and flagged "J". Due to high chemical yields, all tritium results for two samples in one SDG were qualified as estimates and flagged "J". Estimated data are considered usable for limited purposes only. All other QC data are considered to be acceptable and usable for all purposes.

RADIOCHEMISTRY ANALYSIS, WATER MATRIX, (pCi/L+-2 standard deviations)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B08Y11																						
Sample Number	B08Y11		B08Y16		B08Y21		B08Y81		B08Y86		B08Y91		B08YC5		B08YD0		B08YD5						
Location	199-F1-2		199-F5-1		199-F5-3		199-F7-2		199-F7-3		199-F8-2		199-F8-2		EB-1		EB-2						
Remarks													DUP		EB		EB						
Sample Date	07/28/93		07/23/93		07/30/93		07/28/93		07/28/93		07/24/93		07/24/93		07/23/93		07/23/93						
Radiochemistry Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q			
Gross Alpha	4.5	R	-1.3	R	-2.6	R	3.2	R	1.1	R	5.5	R	1.2	R	0.53	R	-0.26	R					
Gross Beta	5.7	R	55	R	460	R	6.1	R	6.4	R	8.3	R	1.2	R	0.53	R	-0.19	R					
Uranium-233/234	2.1	R	0.32	R	0.18	R	3.6	R	1.9	R	9.3	R	10	R	0	R	0.011	R					
Uranium-235	0.14	R	0.037	R	0.008	R	0.13	R	0.10	R	0.46	R	0.53	R	0.018	R	0.027	R					
Uranium-238	1.9	R	0.47	R	0.21	R	2.8	R	1.5	R	8.6	R	10	R	0.015	R	0.022	R					
Plutonium-238	-0.019	R	-0.006	R	-0.003	R	0.006	R	-0.002	R	-0.002	R	0.002	R	0.002	R	0	R					
Plutonium-239/240	0	R	0.005	R	-0.003	R	0.006	R	-0.004	R	0.002	R	0.004	R	0.002	R	0	R					
Americium-241	0.023	R	0.004	R	0.003	R	0.033	R	0.002	R	-0.011	R	0.017	R	0.011	R	-0.002	R					
Strontium-90	0.16	R	22.0	R	190	R	0.082	R	0	R	41	R	-0.002	R	0.084	R	0.097	R					
Technetium-99	6.6	R	26	R	5.8	R	6.4	R	4.5	R	6.6	R	14	R	10	R	5.8	R					
Tritium	120	R	200	R	760	R	580	R	1300	R	1900	R	1900	R	110	R	78	R					
Carbon-14	82	R	150	R	-42	R	-22	R	-57	R	-30	R	-49	R	-53	R	-40	R					
Potassium-40	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Iron-59	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Cobalt-60	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Chromium-51	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Zinc-65	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Ruthenium-103	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Ruthenium-106	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Tin-113	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Cesium-134	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Cesium-137	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Cerium-144	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Europium-152	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Europium-154	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Radium-226	N/D	R	24	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R					
Thorium-228	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	23	R	N/D	R	N/D	R					
Thorium-232	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	81	R	N/D	R	N/D	R					

DUP = Duplicate, EB = Equipment Blank, N/D = Not Detected

RADIOCHEMISTRY ANALYSIS, WATER MATRIX, (pCi/L+-2 standard deviations)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B08Y26																				
Sample Number	B08Y26		B08Y31		B08Y36		B08Y41		B08Y46		B08Y51		B08Y56		B08Y61		B08Y66		B08Y71		
Location	199-F5-4		199-F5-6		199-F5-42		199-F5-43A		199-F5-44		199-F5-45		199-F5-46		199-F5-47		199-F5-48		199-F6-1		
Remarks																					
Sample Date	07/21/93		07/21/93		07/20/93		07/18/93		07/20/93		07/17/93		07/18/93		07/18/93		07/17/93		07/21/93		
Radiochemistry Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
Gross Alpha	2.4	R	2.3	R	0.80	R	0.96	R	0.84	R	1.6	R	4.6	R	1.7	R	5.2	R	0.93	R	
Gross Beta	3.6	R	16	R	9.0	R	7.5	R	12	R	5.1	R	24	R	2.4	R	8.7	R	2.6	R	
Uranium-233/234	5.5	R	1.3	R	0.43	R	0.22	R	0.40	R	1.0	R	3.4	R	3.8	R	3.5	R	0.51	R	
Uranium-235	0.360	R	0.17	R	0	R	0.025	R	0.016	R	0.16	R	0.19	R	0.22	R	0.18	R	0	R	
Uranium-238	5.1	R	0.85	R	0.27	R	0.10	R	0.30	R	0.88	R	2.8	R	3.3	R	2.9	R	0.36	R	
Plutonium-238	0.032	R	0	R	0.004	R	0.033	R	-0.004	R	-0.009	R	-0.007	R	0	R	0.010	R	-0.004	R	
Plutonium-239/240	0.019	R	0	R	0.011	R	-0.011	R	-0.004	R	-0.004	R	-0.007	R	0.017	R	0.014	R	0	R	
Americium-241	0	R	-0.005	R	0.006	R	-0.005	R	-0.003	R	-0.002	R	0	R	-0.008	R	0.004	R	0.011	R	
Strontium-90	0.028	R	6.7	R	3.9	R	2.10	R	6.1	R	0	R	11	R	1.0	R	0.036	R	0.38	R	
Technetium-99	0.91	R	0.63	R	0.41	R	0.56	R	1.5	R	0.80	R	1.3	R	0.20	R	2.1	R	1.3	R	
Tritium	10000	R	1200	R	28	R	7.3	R	230	R	880	R	6100	R	9200	R	14000	R	36	R	
Carbon-14	-37	R	-53	R	-57	R	-67	R	-57	R	-29	R	-46	R	-51	R	-25	R	-54	R	
Potassium-40	N/D	R	N/D	R	N/D	R	N/D	R	240	R	N/D	R	N/D	R	N/D	R	N/D	R	170	R	
Iron-59	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Cobalt-60	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Chromium-51	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Zinc-65	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Ruthenium-103	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Ruthenium-106	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Tin-113	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Cesium-134	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Cesium-137	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Cerium-144	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Europium-152	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Europium-154	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Radium-226	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Thorium-228	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	
Thorium-232	N/D	R	43	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	N/D	R	

DUP = Duplicate, N/D = Not Detected

RADIOCHEMISTRY ANALYSIS, WATER MATRIX, (pCi/L+-2 standard deviations)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B08Y26																		
Sample Number	B08Y76		B08Y96		B08YC0		B08YF1												
Location	199-F7-1		199-F8-3		199-F7-1		199-F8-4												
Remarks					DUP														
Sample Date	07/19/93		07/22/93		07/19/93		07/22/93												
Radiochemistry Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha	0.45	R	1.5	R	2.4	R	5.6	R											
Gross Beta	5.6	R	7.5	R	2.7	R	5.9	R											
Uranium-233/234	2.7	R	3.5	R	2.8	R	4.5	R											
Uranium-235	0.20	R	0.16	R	0.11	R	0.21	R											
Uranium-238	2.0	R	2.9	R	2.2	R	3.5	R											
Plutonium-238	-0.037	R	-0.013	R	-0.019	R	0	R											
Plutonium-239/240	0	R	0	R	0.019	R	-0.004	R											
Americium-241	-0.003	R	0.007	R	0.007	R	0	R											
Strontium-90	-1.1	R	-0.22	R	0.27	R	-0.044	R											
Technetium-99	0.86	R	1.3	R	0.84	R	1.2	R											
Tritium	350	R	130000	R	330	R	11000	R											
Carbon-14	-58	R	370	R	-81	R	-70	R											
Potassium-40	N/D	R	N/D	R	130	R	N/D	R											
Iron-59	N/D	R	N/D	R	N/D	R	N/D	R											
Cobalt-60	N/D	R	N/D	R	N/D	R	N/D	R											
Chromium-51	N/D	R	N/D	R	N/D	R	N/D	R											
Zinc-65	N/D	R	N/D	R	N/D	R	N/D	R											
Ruthenium-103	N/D	R	N/D	R	N/D	R	N/D	R											
Ruthenium-106	N/D	R	N/D	R	N/D	R	N/D	R											
Tin-113	N/D	R	N/D	R	N/D	R	N/D	R											
Cesium-134	N/D	R	N/D	R	N/D	R	N/D	R											
Cesium-137	N/D	R	N/D	R	N/D	R	N/D	R											
Cerium-144	N/D	R	N/D	R	N/D	R	N/D	R											
Europium-152	N/D	R	N/D	R	N/D	R	N/D	R											
Europium-154	N/D	R	N/D	R	N/D	R	N/D	R											
Radium-226	N/D	R	N/D	R	N/D	R	N/D	R											
Thorium-228	N/D	R	N/D	R	N/D	R	N/D	R											
Thorium-232	N/D	R	N/D	R	N/D	R	N/D	R											

DUP = Duplicate, N/D = Not Detected

RADIOCHEMISTRY ANALYSIS, WATER MATRIX, (pCi/L+-2 standard deviations)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TELEDYNE																			
Case	SDG: B08YB1																		
Sample Number	B08YB1																		
Location	199-F7-1																		
Remarks	Split																		
Sample Date	07/19/93																		
Radiochemistry Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha	2.4	J																	
Gross Beta	4.9	J																	
Uranium-235	0.15	R																	
Uranium-238	2.5	R																	
Plutonium-239/240	0.0042	R																	
Americium-241	0.041	R																	
Strontium-90	0.9	J																	
Technetium-99	0.28	J																	
Tritium	250	R																	
Carbon-14	1.4	J																	
Beryllium-7	26	R																	
Potassium-40	93.3	R																	
Manganese-54	0.27	R																	
Cobalt-58	1.20	R																	
Iron-59	3.4	R																	
Cobalt-60	3.90	R																	
Zinc-65	4.8	R																	
Zirconium-95	2.2	R																	
Ruthenium-103	1.2	R																	
Ruthenium-106	22	R																	
Iodine-131	2.4	R																	
Cesium-134	0.29	R																	
Cesium-137	2.6	R																	
Barium-140	0.80	R																	
Cerium-141	6.2	R																	
Cerium-144	0.77	R																	
Europium-152	13	R																	
Europium-154	3.3	R																	
Europium-155	36	R																	
Radium-226	22	R																	
Thorium-228	4.0	R																	
Thorium-234	89	R																	

RADIOCHEMISTRY ANALYSIS, WATER MATRIX, (pCi/L+-2 standard deviations)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TELEDYNE																					
Case	SDG: B08YB5																				
Sample Number	B08YB5																				
Location	199-F8-2																				
Remarks	Split																				
Sample Date	07/24/93																				
Radiochemistry Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
Gross Alpha	8.5	J																			
Gross Beta	17.0	J																			
Uranium-235	0.30	R																			
Uranium-238	9.3	R																			
Plutonium-239/240	0.010	R																			
Americium-241	0.027	R																			
Strontium-90	1.5	J																			
Technetium-99	0.61	J																			
Tritium	1900	R																			
Carbon-14	1.8	J																			
Beryllium-7	2.2	R																			
Potassium-40	7.1	R																			
Manganese-54	1.4	R																			
Cobalt-58	1.90	R																			
Iron-59	5.3	R																			
Cobalt-60	4.80	R																			
Zinc-65	2.4	R																			
Zirconium-95	4.2	R																			
Ruthenium-103	1.8	R																			
Ruthenium-106	18	R																			
Iodine-131	3.4	R																			
Cesium-134	0.0	R																			
Cesium-137	0.46	R																			
Barium-140	6.60	R																			
Cerium-141	5.1	R																			
Cerium-144	4.0	R																			
Europium-152	22	R																			
Europium-154	4.6	R																			
Europium-155	36	R																			
Radium-226	31	R																			
Thorium-228	7.4	R																			
Thorium-234	51	R																			

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